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Feds Push Standards For Health Care IT

Technology to enter public domain, but adoption seen as slow

BY BOB BREWIN

DATA EXCHANGE

The U.S. Department of Health and Human Services last week announced a pair of initiatives to kick-start development of a standardized electronic medical records system that could be used nationwide. But some top health care companies said it could take years for the envisioned technology to be broadly adopted.

HHS said it has licensed a medical terminology database that was developed by the Northfield, Ill.-based College of American Pathologists and plans to make the technology available without charge throughout the U.S. health care industry.

The agency has also commissioned a unit of the Na-

Health Care IT, page 47

Antiterror IT Problem Isn't Technology

Lack of funds, turf wars, complacency threaten info-sharing

BY DAN VERTON
PHILADELPHIA

Improvements in IT interoperability and information-sharing at the federal level have reportedly helped foil several recent terrorist plots. But policy barriers, turf wars and a growing sense of complacency in the private sector threaten to slow homeland security progress, officials said last week.

Although the details remain classified, Rep. Curt Weldon (R-Pa.), vice chairman of the House Armed Services Committee and a member of the House Select Committee on Homeland Security, said "a number of real threats" have been thwarted in recent weeks. Key to those successes, he said, were improvements in IT interoperability and information-sharing that have been made since the U.S. Department of Homeland Security was formed in November.

Antiterror IT, page 47

GENERALLY SPEAKING

Gen. Wesley Clark wants the government to be more proactive on cybersecurity:

QuickLink 39587
www.computerworld.com

MATTHEW FAULKNER

Should You Nix UNIX?

SPECIAL NEWS REPORT

Unix continues to power the world's high-end business machines, and power them well. But with many shops keen to standardize on Windows and many others captivated by the Linux juggernaut, it may be only a matter of time before Unix ends up in IT's legacy scrap heap. **Patrick Thibodeau** examines the future of Unix to address how – and whether – IT managers should factor the venerable operating system into their long-term infrastructure strategies. **Report begins on page 4.**

Identifying The Threat

- Linux **46%**
- Microsoft Windows Server **26%**
- Neither is a threat **18%**
- No opinion **8%**
- Other **2%**

Base: *Computerworld* survey of 266 Unix users

ONLINE EXCLUSIVES

Additional coverage and resources, including a timeline tracing the history of Unix, are available online:

nk a3360
w computerworld.com

INSIDE

Demand for Unix skills remains high

Upcoming Linux kernel pressures Unix

CTOs of HP and Sun assess RISC

NEWSPAPER

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Microsoft
Windows Server 2003

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07.07.03

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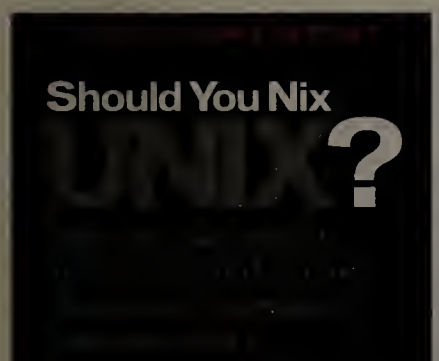
In the Management section: With employee turnover rates at an all-time low, managers at *Computerworld*'s Best Places to Work in IT 2003, like John Golden of CNA Insurance (left), want to find — and keep — the candidates who fit their companies' cultures. **Page 33**

Laptops for the Long Haul
In the Technology section: A new Intel CPU delivers extended battery life for Centrino notebooks. Reviewer Russell Kay takes a look at four competing models. **Page 21**

NEWS



Unix skills continue to be a hot commodity.

The new Linux kernel will prove attractive to corporate IT shops.

The CTOs at Sun and HP discuss their respective Unix strategies.

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16 **Cathy Hyatt** notes that although you might think it's hard to find anything great about IT today, we have many successes to celebrate.

17 **Thornton May** contends that the IT industry is neither sick nor dying. We are instead poised on the cusp of an imagination-driven renaissance.

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ONLINE

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The Future of Unix

FORUMS: After reading the special report that begins on page 4, head to our discussion forum to post your thoughts on Unix's outlook — and see what others have to say. **QuickLink a3410**

How to Handle Cross-Platform User Authentication

MACINTOSH: IT professional and technology writer Ryan Faas looks at issues that can arise with network authentication in a multiplatform workplace. **QuickLink 39556**

Q&A: Dan Gillmor on Apple's New G5s, Panther

Columnist Dan Gillmor sees good things for Macintosh fans coming out of last month's developers conference. **QuickLink a3400**

Easing the Software Maintenance Service Debate

APPLICATION DEVELOPMENT: Spirian Technologies CTO Joseph Sturonas offers tips on smoothing out application maintenance problems. **QuickLink 39647**

Keep Up on the Latest News

Stay up to date on new developments in these big IT stories:

- Oracle's Bid for PeopleSoft **QuickLink a3320**
- SCO's Linux Lawsuit **QuickLink a3260**

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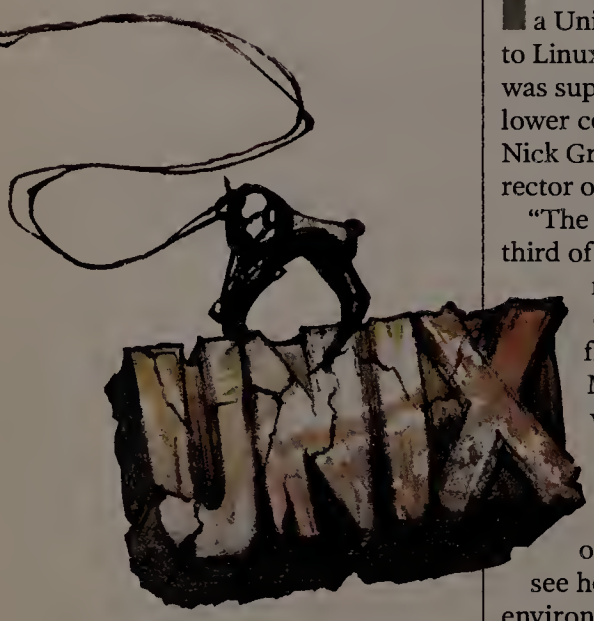
Far From Legacy, but Far More Challenged

With Windows and Linux becoming increasingly attractive options in the data center, IT managers have good reason to reassess their Unix strategies



BY PATRICK THIBODEAU

IN MAY, United Parcel Service Inc. moved a sendmail messaging application from a Unix/RISC-based system to Linux on Intel. The result was superior performance at a lower cost. Much lower, said Nick Gray, the company's director of architectural services.

"The cost was about one-third of the original environment," said Gray. Most of the savings came from replacing Sun Microsystems hardware with Intel-based servers.

Today, Atlanta-based UPS is developing a road map "to see how much of our Unix environment can be supported by Linux," said Gray.

That road map, and those being drawn up by other large corporations, may indicate that some hazards lie ahead for Unix.

"I think the Unix suppliers are definitely threatened by Linux-on-Intel platforms," said Robert Annas, head of systems management for the data center of Dayton, Ohio-based Lexis-Nexis, a Reed Elsevier Inc. subsidiary. "I think you are in the three-to-five-year range before [Linux] really takes over."

46%
of users who said they were migrating from Unix cited cost as a reason.
Base: 98 respondents to a *Computerworld* survey

John Gilligan, CIO for the U.S. Air Force, can see Unix influence decreasing as users seek to leverage improvements in Linux (see sidebar, page 6) and the economies of scale offered by Intel-based systems.

"I would envision, absent some other factors, somewhat of a decrease in Unix," Gilligan said. " 'Going away' is a little strong, because we've got a lot invested."

A lot invested, indeed. Unix is the powerhouse of the corporate enterprise, and companies will spend billions of dollars on Unix systems in the years ahead. But combined, Windows and Linux server spending will surpass Unix by 2007, according to IDC in Framingham, Mass.

Under Attack

Interviews with two dozen users yielded a consensus that Unix is under attack and that its rivals -- predominantly Windows and Linux — are poised to take a larger share of the data center. But the users generally agreed that Unix systems will remain — for years to come — the core of their high-end operations.

Clinton Hope, a senior systems administrator at Twentieth Century Fox Film Corp. in Beverly Hills, Calif., said he has no plans to move off Unix. "We have to look at [Linux] because it is an emerging technology, but we're still not considering it," said Hope, whose IT shop runs on Sun systems. "We don't see it as powerful as Unix systems."

Businesses and governments last year spent more on Unix server operating systems than they did on Windows and Linux server operating systems combined — $20.8 billion on Unix servers worldwide vs. $2.8 billion on Linux and $13.8 billion on Windows, according to IDC.

Unix spending will grow less than 3% through 2007 to reach $21.3 billion, IDC predicts. Meanwhile, Linux server spending will grow by more than 200% to reach $8.8 billion, with Windows server spending rising 40% to $19.8 billion over the same period.

"I think there is a perception that Unix is going to go *poof*," said Jean Bozman, an analyst at IDC. But that's not going to happen, she said. "Unix is a tremendous presence, and it is still the single largest slice of the market."

Still, there's no question that many companies are beginning to reassess their Unix

Unix Compensation, Skills Demand Remain Strong

BY THOMAS HOFFMAN AND PATRICK THIBODEAU

It's a good time to be a Unix technician, so long as you're currently employed.

The weak economy and the bursting of the dot-com bubble have forced high numbers of Unix professionals into the ranks of the unemployed, especially in places such as Silicon Valley and New York, according to many CIOs and IT labor experts.

But the bottom line is that Unix is alive and well in many companies, and that has helped maintain demand for existing employees and fueled high compensation.

But the high salaries and bonuses are contributing to relatively high support costs, said Lynn Sechrest, an analyst at Stamford, Conn.-based Gartner Inc. Unix support costs grew by 8.5% among more than 1,200 companies tracked by Gartner from 2002 to 2003. Meanwhile, Windows NT support costs grew by 7.9% over the same period.

According to a survey of 600 companies that was published by Meta Group Inc. in March, the average base salary for a Unix systems administrator this year is $96,163, about the same as it was last year. But compare that with the average salary of a Windows NT systems ad-

Which of the following best describes your vision of where Unix will be in five years?

It will be an essential operating environment with continued widespread deployment	[illegible]
It will be important in some vertical market sectors, but it will not be considered an essential operating environment for most companies	[illegible]
It will generally be seen as a legacy system warranting a non-Unix migration path	6%
None of the above	3%
Other	1%

Base: 266 respondents to a *Computerworld* survey

strategies. Empresas Polar, a food distributor in Caracas, Venezuela, is one of them.

Empresas Polar supports 5,500 users with an ERP system from SAP AG, running on Hewlett-Packard Co.'s Unix system, HP-UX. But Elkinomar Romer, manager of corporate IT, said the company has begun considering a plan to migrate the system to Linux.

The Unix environment works just fine — no complaints, Romer said. But the company wants to ensure that its SAP system is running on the best platform in the years ahead. "We feel we are running the right platform now," he said. "But what could happen in the future?"

Many users see a key benefit to this competition. Vendors "are going to feel pressure from Linux — pressure to maintain Unix, to expand it, to continue to develop it and improve it," said Paul Edmunds, a programmer and systems analyst at Duke Energy Corp. in Charlotte, N.C.

For now, some users and analysts see the growth of Windows and especially of Linux occurring primarily on low- and midrange systems.

Linux will be "the potential winner in the Web world, in the content management . . . world — where the application and Internet meet," said Deb Mukhergee, chief technical officer at Zurich Financial Services in Switzerland. And the midrange will be "an absolute gold mine for the Linux world," she said.

If users are at all anxious about Unix's future, it's in part because they aren't sure what the major systems vendors will do.

If IBM "starts making [Linux] seamless to us, it's going to be a player," said Will Evans, vice president of IT services at Peoples Energy Corp., a Chicago-based utility. "But it's going to take that . . . and it's not going to happen tomorrow," Evans said. "It's going to take years."

Some users already appear convinced of the large vendors' commitment to Linux. Consumer products giant Unilever Group, with dual headquarters in London and Rotterdam, Netherlands, announced in January that it was embarking on an eight- to 10-year plan to move its entire IT infrastructure from Unix to Linux, proclaiming that it had confidence in the Linux plans of IBM and HP [QuickLink 35861].

But the major vendors also stress that they remain absolutely committed to Unix.

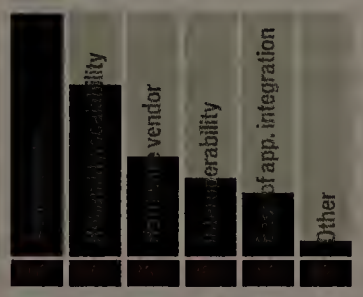
"In no way do I think Unix is entering into any kind of legacy stage," said Nick Bowen, IBM's vice president of xSeries and pSeries software development. IBM has ported Linux to its Power RISC processor, but its AIX version of Unix will be more common than Linux on that platform for years to come, he said.

"The reality of where we are today is that Linux is a very solid four-way [processor] operating system, sort of going to a pretty good eight-way," Bowen Said. "AIX is a near-perfect 32-way."

HP, meanwhile, is placing its bets on the Itanium processor it co-developed with Intel Corp. and plans to stop development of its PA-RISC chip in 2005. Aside from supporting Windows and Linux on Itanium, HP is stressing that HP-

Continued on page 6

What drives your company's reliance on Unix?



Base: 263 respondents; multiple responses allowed

How would you characterize the outlook for Unix?

"I think it will never, ever fully go away. But I think that Linux is going to give it a real run for its money, and because of the cost differentials, Linux will probably win in the long run.

JACK MESSMAN, CEO, Novell Inc.

"Unix will have its place in corporate America, but probably will not have 50% market share over time. In the future, it will probably be 20% mainframe, maybe 20% Unix, and the remaining will be Windows and Linux.

JOHN CHEN, CEO, Sybase Inc.

ministrator, who will haul in a paltry $67,355.

"There's an awful lot of Unix out there, and you can debate what's going to happen with Linux," said Maria Schafer, an analyst at Stamford-based Meta Group. "But Unix isn't going away anytime soon."

"We're firmly committed to Unix," said David Dart, CIO at HVB Americas Inc., the New York division of Munich-based financial services company HVB Group. For its part, HVB Americas runs all of its front-end applications on Unix, including Reuters Holdings PLC's Kondor+ risk management system. "And our Unix team has remained stable over the past three years," Dart said.

While adoption of Windows NT will continue to grow, Unix systems are, in comparison, "sturdier, more robust and bigger systems that require a different set of knowledge than what's required for NT," said Schafer. That's one of the reasons why demand for Unix technicians "will continue to remain strong for the foreseeable future," she added.

Unix programmers often have much better skills than Visual Basic programmers, said Rick Stiegler, chief technology officer at Lending Tree Inc. in Charlotte, N.C. And it's that discrepancy that has given Windows a reputation for reliability problems, he said.

"Visual Basic scales just fine," said Stiegler. But because it's relatively easy to learn Visual Basic, many IT professionals who claim to be Windows programmers often don't have the extensive software development skills of Unix programmers, he said.

Another factor that may be influencing the value of Unix programmers is the adoption of Linux in the enterprise. Unix programmers are typically better equipped than others to deal with Linux systems.

Many computer science students, such as those at Carnegie Mellon University in Pittsburgh, are getting extensive training on Linux operating environments. The operating system naturally attracts students, in part, because the source code can be examined, said Randy Bryant, who heads the university's computer science department.

But it isn't difficult for these students to move into corporate Unix environments, said Bryant. "From a teaching perspective, Unix vs. Linux doesn't make much difference; the APIs are essentially the same on it," he said.

"If they know Linux, then they are prepared for a Unix future," Bryant said. "But they are not that well prepared for a Windows future."

PAY COMPARISON

Unix systems administrators vs. Windows NT systems administrators

	Total average cash base compensation	Average bonus
UNIX	$96,163	$4,972
WINDOWS NT	$67,355	$5,139

SOURCE: META GROUP INC., STAMFORD, CONN., 2003

Far From Legacy, but Far More Challenged

Continued from page 5

UX on Itanium will match the capability of HP-UX on PA-RISC. The RISC architecture is 20 years old, and "all architectures run their course," said Mark Hudson, vice president for marketing in HP's business-critical systems group.

Competitors see HP's Itanium move as an opening to woo HP-UX users to other Unix systems, Linux and Windows. But Tony Iams, an analyst at D.H. Brown Associates Inc. in Port Chester, N.Y., said running HP-UX on Itanium will in fact be identical to running it on PA-RISC, so there won't be a steep learning curve for administrators. Moreover, applications won't need to be recompiled.

While Sun, for its part, is staunchly committed to its Solaris version of Unix and to its Sparc RISC chips, it has ported Solaris to Intel's 32-bit chip and is supporting Linux on Intel systems. Clark Masters, executive vice president of Sun's enterprise systems group, claimed that Solaris will remain more advanced than Linux for the foreseeable future. But he sees a peaceful coexistence between Linux (which is a Unix derivative) and Unix in corporate systems.

"I think Linux is a friend of Sun's and a friend of Unix," Masters said. "If [Linux] is any threat in the world to existing franchises, that threat is to Microsoft and the Windows environment."

But Windows may be threatening Unix every bit as much as Linux is threatening Windows.

There's no question that Windows is making a push deeper into the enterprise. Blue Bell, Pa.-based Unisys Corp. ships an Intel-based server that scales up to 32 processors, and the company says that about 75% of its systems ship with 16 or more processors. "That says that people are putting on big applications, big mission-critical databases, and they are running them on Intel and Windows," said Mark Feverston, vice president of enterprise systems at Unisys.

Indeed, as much as Linux is an emerging presence, Windows is already firmly rooted. UPS has approximately 6,000 Windows servers and relies on fault-tolerant Intel-based servers supplied by Stratus Technologies Inc. in Maynard, Mass., to handle its messaging. Gray said Windows is performing well, but as part of his Linux strategy he intends to monitor the evolution of open-source products, such as the MySQL database from MySQL AB, a Swedish company with U.S. headquarters in Seattle. "But that is more of a dream and desire than anything we think is real in the next two-, three-, four-year time frame," he said.

SERVER OS MARKET SHARE

	2002	2007
WINDOWS	28%	34%
NETWARE	4%	2%
UNIX	42%	37%
LINUX	5%	15%
OS/390	8%	6%
OS/400	5%	2%
OTHER	8%	5%
TOTAL REVENUE	$49.3B	$58.2B

SOURCE: IDC, FRAMINGHAM, MASS., 2003

The SCO Factor

The SCO Group Inc.'s recent claims that Linux infringes on its Unix copyright [QuickLink a3260] has created some consternation in the IT management community. But many observers expect Lindon, Utah-based SCO's actions to have little impact on the Linux juggernaut.

Brent Williams, a former software engineer who is now an analyst at McDonald Investments Inc. in Cleveland, points to Apple Computer Inc.'s legal actions against Microsoft in the early 1990s, in which Apple alleged that Microsoft's development of Windows infringed on its patents. "People didn't stop buying Windows even though it was operating under that cloud," he said.

"Linux is a grass-roots type of environment," said Mike Dunn, a licensing manager in the systems architecture group at Phoenix-based Best Western International Inc. "And if you look at computer systems — or any kind of grass-roots movement — sometimes it becomes a groundswell and just takes over." ◗

Timeline: The History of Unix

Vendor Face off Executives at Sun Microsystems and SuSE Linux make their cases for how Unix will fare in the face of Linux.

Forum: What do you think about the future of Unix in the enterprise? Post your opinions, and read what others have to say.

Huntington Bancs[illegible] sees Unix as its server consolidation solution.

CREDITS

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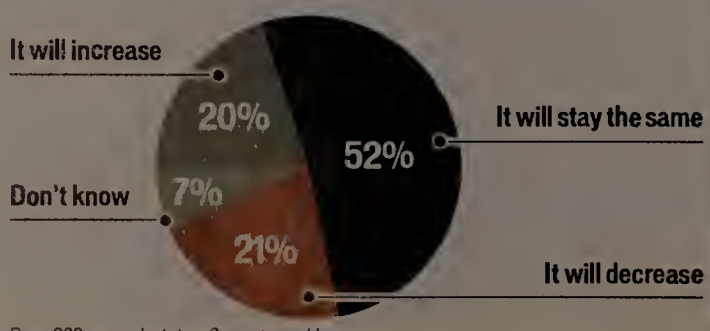
Researcher: Mari Keefe
Designer: Julie Quinn
Editor: Don Tennant

Over the next five years, how do you expect your company's demand for workers with Unix skills to change?



Base: 266 respondents to a *Computerworld* survey

Upcoming Linux Kernel 2.6 Will Put More Pressure on Unix

As Linux continues to gain more of the high-powered features needed in business computing, it's becoming a more viable alternative for IT shops investigating a migration away from Unix.

Linux kernel 2.6, due for release in the fourth quarter, will yield more features that are of value to corporate IT managers. Linus Torvalds, the creator of Linux, said in an e-mail that the main new kernel features for enterprise applications will be "the usual scalability stuff, i.e., much better behavior across a lot of loads over lots of CPUs and huge amounts of memory. People are seriously using [machines with 16 to 64 CPUs] these days."

Key new features in the 2.6 kernel include the following:

- **Support** for new hardware architectures, including the latest Advanced Micro Devices Inc. 64-bit Opteron CPUs and PowerPC 64 CPUs.
- **Improved scalability** to 16 CPUs or more, with improved performance, using the new O(1) scheduler.
- **True asynchronous I/O** for performance improvements in enterprise applications, including databases.
- **Improved file-system performance,** with full inclusion for four journaling file systems (Ext3, Reiser Version 4, JFS and XFS) for real-time data backup and recovery capabilities.
- **Improved threading support** for the new Posix threads library, with the ability to handle up to hundreds of thousands of threads, as well as full Posix compliance for the first time.
- **Enhanced high-bandwidth networking support,** with TCP Segmentation Offload support and zero-copy Network File System support.
- **Support** for USB 2.0.

– Todd R. Weiss

With or Without the RISC

The chief technology officers of HP and Sun discuss their respective Unix strategies in view of their diametrically opposed hardware positions. By Don Tennant

SHANE ROBISON

Chief strategy and technology officer, Hewlett-Packard Co.

ROBISON:

What is HP's Unix strategy in light of the company's decision to drop PA-RISC? Unix is a very important part of our operating system and operating environment strategy. In the foreseeable future, I don't see a big change. We've got an operating system strategy which we've been pretty consistent on, which is Unix with HP-UX, Linux, and NT and all the Microsoft environments. We are consolidating to microprocessor platforms around IA-32 and IPF [the Itanium processor family]. And we are porting all of our operating systems to IPF. In fact, HP-UX is up and running now on IPF.

There is certainly a perception among users we've talked to that RISC and Unix go together and that distancing yourself from RISC naturally means a distancing from Unix. Are you fighting any such perception or confidence issue among your HP-UX users? We were worried about it in the beginning. We went out and worked very carefully with our big enterprise customers.

The nice thing about the Unix space is the customers are really big: You know who they are; you can go sit down and have a conversation with them. We've literally lost, I think, one or two to a different platform, and they were people who were looking to move for other reasons. Even those have gone to Linux or NT.

What sort of a curve do you see for the HP-UX market? Upward, downward or remaining flat? That's getting into what's happening in the Unix market overall. We see it as sort of flattish. But it's not a function of Unix. If you look at what's happening in the IT environment, it has been a little slow. If you look at our Unix business, we've done pretty well, relative to the market.

Would it be fair to characterize Unix as a casualty of the RISC-Intel war that Intel won? No. What you're seeing is a consolidation in this industry, where you can no longer afford the investment required to support the entire ecosystem around a proprietary microprocessor architecture. So we're moving to more industry-standard platforms, where you get the economies of scale of having a partner like Intel provide a platform to the industry.

What's your response to someone who says Unix is becoming a legacy system? I don't see that. We're adding features and enhancing Unix and doing all kinds of new things to move the ball forward. I think the Unix market [will be] around for longer than people believe. There are a lot of the big business applications and the whole supporting environment in the high-end space, and I don't see CIOs switching off that.

Will there come a point where there's no reason to run Unix because Linux will do everything Unix does for a lot lower price? You could ask that same question about NT.

I could ask the same question about anything, but let's deal with this one. At some point, but not anytime soon. That's a controversial statement. The Linux guys have made a lot of progress in the last couple years, and they're moving into certain parts of the enterprise. But in a lot of the mission-critical stuff, it's still a Unix world. Linux is an operating system that is positioned very well in certain market segments. The same is true with HP-UX.

> "The Linux guys have made a lot of progress. . . . But in a lot of the mission-critical stuff, it's still a Unix world."
> **SHANE ROBISON**

Do you think Sun Microsystems, which is so dependent on Unix, has a viable long-term business model? Sun's got two problems. They've got a very expensive hardware platform that they've got to get out from under. And they've got a crisis of confidence in their customers around whether they're going to be a viable company. So Solaris is losing market share to the other big Unixes and to Linux on x86 where the ROI is better. ◗

Q&A

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www.computerworld.com

GREG PAPADOPOULOS

Chief technology officer, Sun Microsystems Inc.

PAPADOPOULOS:

HP decided that being in the microprocessor business wouldn't be economically feasible in the long term. Why is it economically feasible for Sun in the long term? Because I don't make the chips. It's a fabless model; I design the chips. The question is, Is there value that you get out of being able to control microprocessor design? So far, we've proven yes, there's tremendous value.

HP made a decision that they did not have sufficient volume in their processors to justify them continuing to design and manufacture their own processors. So they decided to teach Intel what they knew about processor design and go create Itanium. Itanium is sort of a zero-volume processor right now, so the economics of that is a disaster. I don't understand how that is somehow a more viable economic model than what we do.

Sun has already done a lot of work to port Solaris to Itanium. Was all of that work done in vain? What's happened is that as we've moved forward to the new software with Itanium and UltraSparc 5, we all started these things before we even understood anything about Web applications, let alone Web services. So they were designed in an environment of, "How do I run a single job fast?" And that's not what we want. The Itanium is off in a corner of the computing space where I don't think the volume server is going to be. We've gone back and said it's going to be far more important to support 32-bit.

> "If developers are writing an application to an operating system, you have to question what they're doing."
> **GREG PAPADOPOULOS**

Can you foresee any scenario in which those Solaris-on-Itanium efforts would resume? Yeah, I could see that if Itanium starts to build some substantial volume in the market. It hasn't proven to do that. I don't have anything against it; from an engineering point of view, it's real bravado on Intel's part – they're doing a very complex design. But I just don't think that's the center of what the applications need.

It's pretty clear that there's an ongoing debate within Sun about how aggressive you should be in adopting Linux as more of a core part of your operating system strategy. Can you give me a behind-the-scenes glimpse into how that debate is going? The debate is around how much longer people are going to persist in focusing on operating systems. It's not where people are writing applications. If you go into an enterprise, if developers are writing an application to an operating system, you have to question what they're doing. Because most new applications are being written at the next layer up – they're written as server pages, as directory entries, as database tables, as JavaBeans. If you're writing C and C++ applications still, you're doing something old or something that's very special. But it's not where the mainstream development is, because it's simply not productive enough. In that context, we view Linux and Solaris and Intel architecture and Sparc architecture as all components and choices. You use the best component for the job at the time. Honestly, I don't care. It's not important.

Is there anything to keep Linux from developing into a head-to-head competitor against Solaris? As an operating system kernel, it's a component choice. The question is really about how this evolves to the next layer, and, of course, we think that's all around Java.

What are the prospects for Sun to adopt a Linux-on-Sparc strategy? It doesn't make a lot of sense right now because Linux is a binary architecture. It's exactly the same [reason] why Linux on Itanium doesn't make sense, because the volume is around the 32-bit binaries.

For the Unix market as a whole, do you see the curve going up, going down or staying flat? I'm not one who looks at the whole market – I look at our piece of the market. We are blending Unix and Linux systems, and I think that total market grows for us. ◗

BRIEFS

Microsoft Plugs .Net Passport Hole

Microsoft Corp. said it has patched a security hole in its .Net Passport identity management service that attackers could have used to hijack end-user accounts. The flaw was in a Secret Question feature that aids users who forget their passwords. Microsoft said it has no evidence of any exploits.

i2 Delays Financial Statement Again

Dallas-based i2 Technologies Inc. missed a target of filing its delayed Form 10-K financial statement for 2002 by the end of June. The struggling vendor of supply chain software, which is revising its results back to 1999 [QuickLink 37514], said it's nearing completion of the 10-K work and hopes to submit the document to the U.S. Securities and Exchange Commission this month.

SEC Sues, Deals With Peregrine

The SEC filed a lawsuit charging asset-management software vendor Peregrine Systems Inc. with improperly booking revenue between March 1999 and the end of 2001. The agency also announced a partial settlement under which San Diego-based Peregrine will take steps to improve its internal controls. Any penalties will be decided later. [To read an interview with Peregrine's CEO, go to our Web site: QuickLink 39591.]

Short Takes

STORAGENETWORKS INC. in Waltham, Mass., announced that it has completed a planned exit from the managed storage services business. . . . New York-based DICE INC., which operates an IT-oriented online job board, said it has emerged from Chapter 11 bankruptcy protection.

MARK HALL ▪ ON THE MARK

ID Management Guessing Game Gets . . .

. . . "curiouser and curiouser," as Alice once remarked from Wonderland, though not exactly about the varying paths vendors have taken to make end-user identification, provisioning and other functions "simple" for IT. Still, given the radically different technologies the major vendors are putting on the table, **Lewis Carroll's heroine undoubtedly would have found** that ID management proponents fit in well with the characters she met during her underground adventures. Microsoft Corp. grabbed the comfy chair at the ID management tea party last week with the release of Microsoft Identity Integration Server 2003, touting ease of use among its many features. (See story, page 12.) **And that's no lie, says Adrien Ransom,** vice president of marketing and business alliances at OpenNetwork Technologies Inc. in Clearwater, Fla. "Our users are more comfortable to have ID management in .Net," she says. "It's easier to manage." That's because there are far more people trained on Microsoft technology than those in the know about Java-based systems, she adds. If that came from a knee-jerk Microsoft independent software vendor, it would be mere cant. But coming from a company that currently ships Version 4.8 of its Universal Identity Platform in Java, well, it's actually credible. Ransom says the company's 5.0 release will bridge Java and .Net ID repositories and add a third — mainframe security systems such as RACF and ACF2. Curiously, OpenNetwork is willing to juggle two code bases because with 5.0's availability in August, the product will be in both .Net *and* Java versions. Not so curiously, Ransom expects most of the **revenue will quickly shift to the .Net version.** Money does seem to stick to all things Microsoft. ▪ But wait. There may be an even simpler approach. Java's bid for ID management ease of use is to take IT out of the ID management picture. Later this week, PeopleSoft Inc., Sun Microsystems Inc. and Waveset Technologies Inc. will make the case that ID management belongs — at least as far as employees are concerned, which is the major part of ID management — inside the HR department through an integrated PeopleSoft application. "It simplifies the implementation scenario," purports Fred Federline, market development manager at Sun, whose Java-based Sun ONE Directory Server will be the ID management data repository in the PeopleSoft package. Glenn Sulzberg, director of product management at Pleasanton, Calif.-based PeopleSoft, says all IT provisioning functions will be handled directly inside the PeopleSoft software during everyday tasks, such as hiring and termination, by HR reps. **IT folks can simply put their feet up,** it seems. Austin-based Waveset will contribute a new version of its Lighthouse ID management software in the third quarter. ▪ Identifying **hot new Cobol tools** may not be on everyone's list, but it's on quite a few, given Gartner Inc.'s estimate that 200 billion lines of Cobol code still are executing 30 billion transactions per day. So Relativity Technologies Inc. in Cary, N.C., will add Application Profiler to its Modernization Workbench. The new module, which is scheduled to ship July 15, is designed for systems analysts who need to, say, **evaluate how Cobol code changes** effect other applications. ▪ You often don't learn about application interference until the problems crop up in consoles running application management and monitoring products like Foglight and Spotlight from Quest Software Inc. in Irvine, Calif. Domain experts needing to fix such problems using Quest's consoles have depended on tools that were tied to the application's underlying database. And they still will until the fourth quarter, when the company ships a unified console for Oracle, IBM's DB2 (including the mainframe version) and Microsoft SQL Server. Individual console windows will provide platform-specific advice and commands to resolve issues. **Could be a boon to IT staff cross-training.** And it's a good bet Quest will embrace the MySQL database soon. ◗

Portfolio Tool

On July 14 Pacific Edge Software Inc. in Bellevue, Wash., will ship Portfolio Edge 2.0, which has been entirely rewritten as a .Net app and, in fact, is a completely new product, offering soup-to-nuts portfolio management.

Support Ends for Windows NT 4.0 Workstation

BY CAROL SLIWA

The extended support phase for Microsoft Corp.'s Windows NT 4.0 Workstation operating system ended last week as expected. So corporate users in need of assistance will now have to rely on the company's self-help online option or seek a custom contract with Microsoft or an outside company.

What Microsoft refers to as "mainstream" support ended a year ago for NT 4.0 Workstation. Mainstream support includes no-charge incident support, warranty claims, hot fixes, paid incident support, support based on an hourly fee, and security patches.

Extended support essentially includes the paid options, with the exception of security-related hot fixes, which are still free during that phase. A hot fix is a modification to commercial product code to address a specific problem.

Microsoft last October announced a "support life-cycle" policy calling for most products to have mainstream support for five years, followed by two years of extended support. Self-help online support runs for at least eight years.

In January, Microsoft extended through Dec. 31, 2004, pay-per-incident and security support for NT 4.0 Server — which, like NT 4.0 Workstation, was released July 29, 1996. Nonsecurity hot fixes are available with a custom contract until the end of this year.

Still Widespread

Mike Silver, an analyst at Stamford, Conn.-based Gartner Inc., said Microsoft also should have extended support for NT 4.0 Workstation.

He said a survey conducted last fall at a U.S.-based Gartner conference showed that 35.4% of the respondents' 850,000 desktops still ran NT Workstation. At a European conference, the percentage was higher, with 57% of 505,000 desktops on NT.

"Every organization needs to come to its own terms about how big an exposure that is," he said.

No-charge assisted support and extended hot-fix support for Windows 98 also ended last week, but Microsoft will provide paid support through Jan. 16, 2004. ◗

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Microsoft

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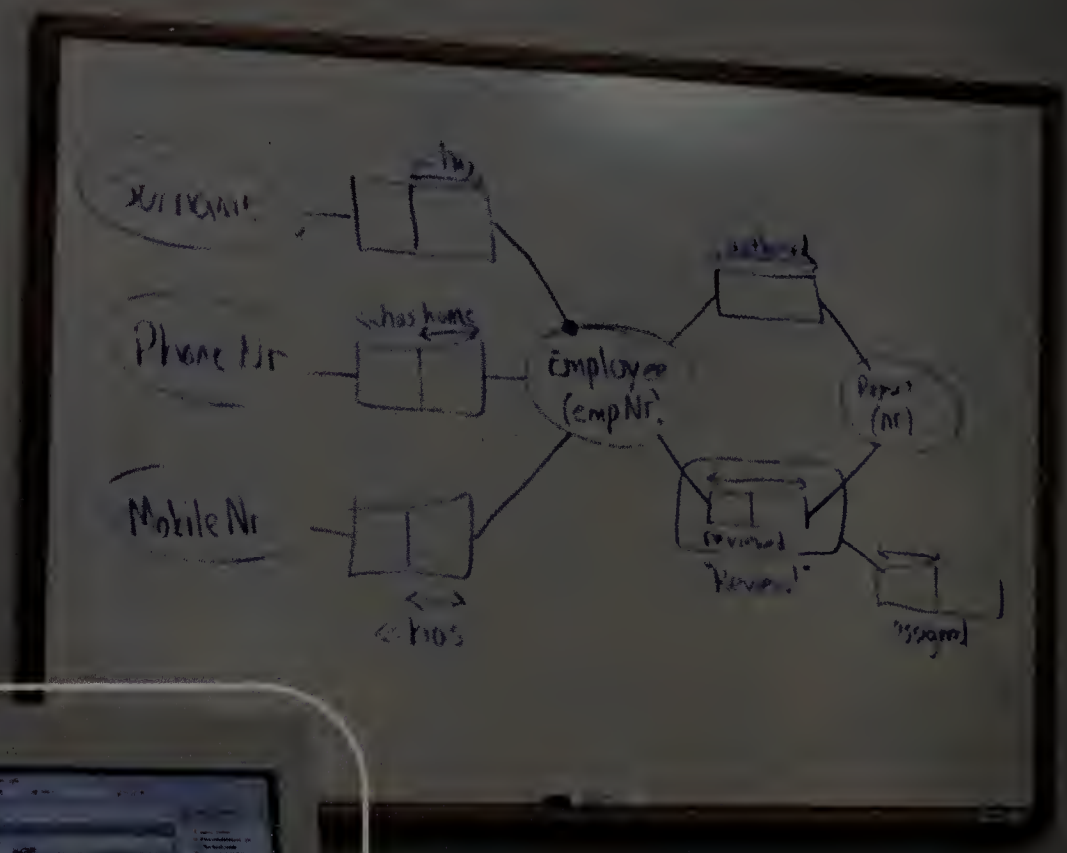

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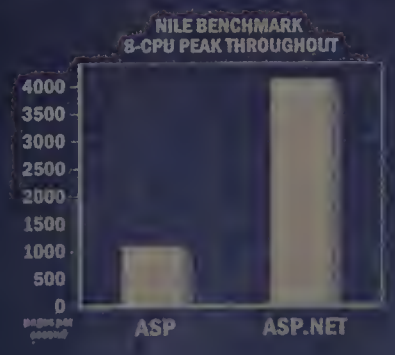
Microsoft Visual Studio .net



Microsoft Metadirectory Services Gets New Identity

Release adds automatic account provisioning, password management

BY CAROL SLIWA

IDENTITY MANAGEMENT

MICROSOFT Identity Integration Server (MIIS) 2003, which was released to manufacturing last week, is more than just a name change for Microsoft Corp.'s Metadirectory Services software, the company said.

MIIS 2003 goes beyond the metadirectory by automating account provisioning and adding password management to its existing ability to integrate user identity information across multiple account stores running on different systems, said Michael Stephenson, a lead product manager at Microsoft.

"This is a major revision to the product," said Jamie Lewis, CEO and research chairman of Burton Group in Midvale, Utah. He noted that directory and metadirectory services are evolving to a broader set of identity management tools and services.

Katten Muchin Zavis Rosenman, which has 1,600 employees, has already started seeing benefits since it deployed a release candidate of MIIS 2003 in late May, according to Alexander Diaz, application development manager at the Chicago-based law firm.

Diaz said the firm began using Microsoft Metadirectory Services (MMS) with the goal of single entry of basic employee information, such as name, department and location, to approximately 20 different systems. But the old MMS software's capabilities were limited, he said.

"The previous system used a proprietary Web store for the metadirectory information. The new product leverages SQL Server, so it scales a lot more than the previous version," Diaz said. "You can store a lot more information, and you can deploy a lot more connectors without running into the limitation on the directory store."

Diaz said it's also helpful to be able to use Microsoft programming languages, such as Visual Basic and C#, to provision accounts and extend capabilities to other Windows application programming interfaces (API). He said he can use Visual Basic .Net, for instance, to create user home directories with the necessary security to prevent unauthorized access. Diaz added that he can also write directly to APIs in a network fax application and more efficiently handle account renaming.

"Some of those things had to be handled manually by administrators in the past," he said. "I'm eliminating a lot of the tedious, mundane tasks that are repetitive in nature."

Connectors to non-Microsoft systems such as Lotus Notes and to Microsoft's SQL Server have also improved in the Enterprise Edition of MIIS, according to Diaz. He said the old connector to SQL Server was targeted at pulling data from human resources systems.

"The new one is really a full-fledged connector and lets you push or pull data," Diaz said. MIIS also allows the firm to more effectively synchronize passwords on multiple systems and lets users change their own passwords, he said.

But John Enck, an analyst at Stamford, Conn.-based Gartner Inc., said that while Microsoft's vision is strong, the first edition of MIIS will fall short on password management for some users. Enck said the password management function doesn't address Unix, IBM's AS/400 or mainframe password management and that users will need to implement Services for Unix and/or Host Integration Services for those systems.

Enck said MIIS also falls short in the workflow area. He said users must integrate Microsoft's BizTalk Server or a third-party product for workflow tied to identity management.

MIIS 2003 Enterprise Edition is priced at $24,999 per processor. ◗

NOT TO BE OUTDONE . . .

Novell Inc. plans to launch identity management products tomorrow.

QuickLink 39562
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Oracle Antitrust Probe Leaves Users in Limbo

Gives PeopleSoft, J.D. Edwards merger chance to proceed

BY MARC L. SONGINI

The U.S. Department of Justice last week requested more information from Oracle Corp. about its proposed takeover of PeopleSoft Inc., putting a roadblock in place that could aid PeopleSoft's effort to fend off Oracle but result in months of uncertainty for users.

Meanwhile, PeopleSoft said its second-quarter financial results will beat expectations, thanks largely to one of the ploys it's using to fight Oracle's bid: offering new users or customers who are upgrading refunds if the company is acquired and the products they buy are discontinued.

The DOJ's antitrust-related evaluation could go on for three or four months, if not longer, said Daniel Wall, who specializes in technology and antitrust issues at the San Francisco office of law firm Latham and Watkins. In the meantime, users of PeopleSoft's and J.D. Edwards & Co.'s applications will have to make purchasing and upgrading decisions under "a cloud of uncertainty," he said.

But Bob Dutkowsky, CEO and chairman of Denver-based J.D. Edwards, said in an interview that the DOJ's move could give PeopleSoft a chance to complete a friendly acquisition of his company before Oracle can take any action on its offer. The request for additional information from Oracle "creates a clear and wide-open pathway for J.D. Edwards and PeopleSoft to merge," Dutkowsky said.

That would further complicate matters for Oracle, which has said it will reassess PeopleSoft's $1.75 billion deal with J.D. Edwards if its hostile bid for PeopleSoft succeeds.

Oracle spokesman Jim Finn said in a statement that the DOJ's request wasn't surprising, "given the size and scope of the [proposed buyout] and the fact that PeopleSoft is also proposing its own transaction." Oracle remains optimistic that the DOJ will decide that the company's $6.3 billion offer for PeopleSoft isn't anticompetitive and that the buyout will be completed "in a timely manner," he said.

But some PeopleSoft users who oppose Oracle's offer said they view last week's development as a positive step.

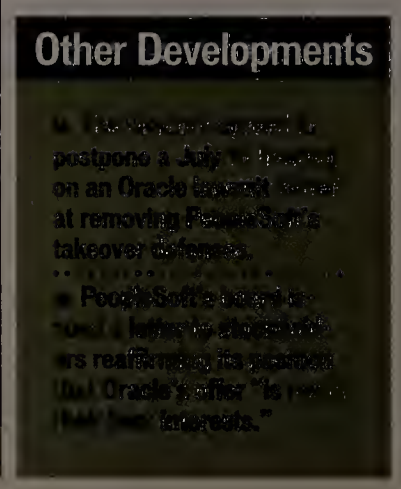
"The longer these things stretch out, the more probability of failure [there is for Oracle's bid]," said Peg Nicholson, president of the PeopleSoft International Customer Advisory Board and CIO at golf equipment maker Acushnet Co. in Fairhaven, Mass.

"I would think time is on PeopleSoft's side," said John Schindler, CIO at L.D. Kichler Co., a Cleveland-based maker of electrical products. He added that if the purchase of J.D. Edwards is consummated, Oracle would likely have to increase its offer for PeopleSoft.

Despite the uncertainties faced by PeopleSoft's users, the company said its second-quarter software license revenue could reach $115 million — well above the $65 million predicted by some analysts.

After Oracle announced its takeover bid, PeopleSoft started building acquisition-related refund offers into its software contracts [QuickLink 39343]. Kevin Parker, PeopleSoft's chief financial officer, said during a teleconference last week that more than half of the second-quarter license revenue came from deals that included such offers. ◗

Other Developments



MORE ONLINE

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BRIEFS

Sun Upgrades Java Client Software

Sun Microsystems Inc. released Version 1.4.2 of its Java 2 Standard Edition software for client-level application development. The upgrade includes more than 2,400 bug fixes, plus enhancements to the software's Swing graphical user interface components that let developers approximate the look of Windows XP- or Linux-based desktop systems, Sun said.

BMC Sells Storage Software to EMC

EMC Corp. will acquire the rights to BMC Software Inc.'s discontinued Patrol Storage Manager technology under a deal announced by the two companies. Hopkinton, Mass.-based EMC said it will support users of the storage management software and try to migrate them to its own ControlCenter product. In addition, Houston-based BMC will become a ControlCenter reseller.

CA Adds Wireless Tools to Unicenter

Computer Associates International Inc. announced four new or upgraded Unicenter network management products, including performance monitoring and troubleshooting tools designed to help users manage wireless LANs. CA said it developed the wireless management software in-house, having previously depended on third-party offerings.

Short Takes

MICROSOFT CORP. announced that the release candidate of a Windows Server 2003 version for small-business users is now available for testing. . . . Reston, Va.-based NEXTEL COMMUNICATIONS INC. submitted a high bid of $144 million during an auction of broadband spectrum owned by WorldCom Inc. in 100 U.S. metropolitan areas.

Sources Say IBM to Drop Windows-based Storage

Linux-based file server is expected to replace TotalStorage NAS devices

BY LUCAS MEARIAN

IBM PLANS to discontinue its line of Windows-based network-attached storage (NAS) devices in order to focus on higher-end products, including a file server that's expected to run Linux, sources said last week.

The sources said IBM has told them that it plans to announce this month that it will stop making its TotalStorage NAS 100 and NAS 200 filers. The two products offer storage capacities of up to 480GB and 7TB, respectively.

According to the sources, IBM will continue to sell its NAS Gateway 300 system, which connects servers and PCs on IP networks to storage-area networks (SAN) that are based on Fibre Channel technology. In addition, they said, the company plans to offer higher-end NAS devices, including a Linux-based one.

"IBM wants to own the data center — the midrange and high-end market," said John McArthur, an analyst at IDC in Framingham, Mass. "They're not trying to capture the low-end, high-volume market."

IBM officials declined to comment on the matter, describing the information about its plans as "speculation."

A spokesman for Microsoft Corp., which develops the Windows Powered NAS software used by IBM and other storage vendors, also wouldn't comment. "IBM's plans are IBM's," he said. "But we have a wide range of OEMs that continue to expand [their NAS offerings]."

IBM announced the NAS 200 in June 2001 and added the lower-cost NAS 100 last July as part of a plan to compete on a wider basis with rivals such as EMC Corp. and Hewlett-Packard Co.

But Pushan Rinnen, an analyst at Gartner Inc. in Stamford, Conn., said sales of IBM's low-end NAS line haven't taken off. For example, NAS 100 sales totaled $3.4 million last year, which represents only 3% of the entry-level NAS market, according to Gartner's figures. "The volume is not high enough [for IBM] to be a strategic player," Rinnen said.

The NAS 200 and the NAS Gateway 300 have done better, she said, adding that the NAS-to-SAN gateway device was third behind products from EMC and HP in its market niche last year. But Rinnen said IBM placed sixth in the overall NAS business during 2002, with about $40 million in sales and a 3% market share.

Until now, the top storage vendors have been steadily rolling out products based on Windows Powered NAS. But because of IBM's low sales, its planned pullout "is no blow to Microsoft," McArthur said.

ISCSI INTRODUCTION

Microsoft ships a software driver that supports the emerging storage interconnect on Windows systems:

QuickLink 39646
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IBM's Current NAS Offerings

TotalStorage NAS 100

Pentium III-based tabletop device that can handle up to 480GB of storage

Supports RAID Levels 1 and 5 and uses hot-swappable ATA disk drives

Pricing starts at $4,420

TotalStorage NAS 200

Supports one or two Xeon processors and capacities of 220.2GB to 7TB

Includes RAID protection, point-in-time data views and hot-swappable Ultra-SCSI drives

Pricing starts at $8,020

Shareholders to Drag EDS Into Court

Allegations about false financial statements surface

BY DAN VERTON

Lawyers representing shareholders in Electronic Data Systems Corp. today plan to file a class-action lawsuit against the company, alleging that it artificially inflated its stock price with misleading financial reporting statements.

New York law firm Bernstein Litowitz Berger & Grossmann LLP, which represents the shareholders in the case, has retained Ron Zahn, a certified public accountant and fraud investigator. Zahn said he's looking into EDS's handling of what the Plano, Texas-based company recently called "problem contracts." Among those contracts is EDS's $6.9 billion Navy/Marine Corps Intranet (N/MCI) deal.

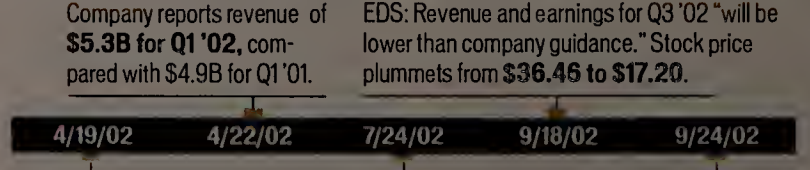
In May, EDS reported a quarterly net loss of $126 million [QuickLink 38326], blaming it on those problem contracts and a whopping $334 million pretax loss stemming from difficulties with the multibillion-dollar N/MCI program. Zahn said that in addition to the financials, he's investigating internal EDS communications made public in May that characterized the company's deployment plan for the troubled contract as a "scorched-earth seat rollout" policy.

In a recent interview, David Wennergren, CIO for the U.S. Navy, said he believed that EDS was finally starting to "generate cash for themselves" from the N/MCI contract. "They had a huge capital expenditure that they had to make to get this thing going," Wennergren said. "I'm sure it was tough."

The complaint being filed today stems from a Sept. 18, 2002, EDS announcement that it expected its third-quarter 2002 earnings to fall short of the company's prior guidance by approximately 80%. A week later, securities analysts discovered that EDS hadn't disclosed certain financial obligations related to the sale of "put" contracts on its own stock, which would require EDS to pay $225 million. As a result, the price of EDS's stock tumbled, and shareholders lost about $11.8 billion.

EDS declined to discuss the suit, citing a policy against commenting on pending litigation.

The Case Against EDS



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PATRICIA KEEFE

Cyber Rights Overdue

EVERY TIME some new business regulation comes up, a mob of people materializes, decrying the impacts it will have on companies. It will cost huge sums of money! It will put people out of work! Entire industries will collapse! The sky will fall — mark their words. Of course, none of it ever does.

The hysterics conveniently ignore the real need for some of these regulations, as well as the fact that those affected had plenty of time to head off legislation by policing themselves or offering compromise solutions.

Two factors typically drive business regulation: crisis situations that absolutely demand a response from the government or oversight bodies, and carelessness or arrogance by the targeted industry.

So behaving well and planning ahead would appear to be the best strategies for warding off government oversight. But we seem unable to do that.

Instead, we alternate between sticking our heads in the sand and throwing tantrums at the slightest whiff of policy. These tactics work in the short term, and the result is always the same.

Look at spam — resentment has reached a fever pitch, boiling over with a vengeance, from the states all the way up to Congress. People are ticked off, from Bill Gates on down. We are going to see the hell regulated out of spam, and there's no stopping it now.

The privacy issue is also heating up. The cybersnots can say whatever they like about how no one has any privacy and we should all just get over it, but increasingly, Americans disagree. And for the hand-wringers who say it can't be done, Europe has already enacted privacy laws. (Is it just coincidence that Gartner estimates that Europe will overtake the U.S. for online sales later this year?) Since many Fortune 1,000 companies compete globally, we all knew we were going to have to at least accommodate Europe's laws. On the home front, we now have legislation in California breathing down our necks, with the promise of more to come.

What we don't need right now is more industry resistance to efforts to define the parameters around various cyberactivities. We need a more proactive approach, one that recognizes that we have an opportunity to finally deal with some real digital issues — problems that can turn an individual's life upside down or bring a business to its knees. We have old questions we need to reconsider. For example, what exactly is intellectual property in the digital age, and how do you protect it? Where is the intersection between the right to advertise and the right to control the flow of information into your mailbox? Do cyberstores have a greater need — and right — than brick-and-mortar stores to shadow visitors after they leave their sites? If you can't slip a tracking device into the pocket of a real customer, is it OK to attach one to a cybershopper?

These are all questions we should be facing head-on. And we need to take reasoned action. What we need, quite simply, is a cyber bill of rights.

My colleague across the page, Thornton A. May, summed it up eloquently when he said, "We as Americans need to do some hard thinking about the future we want to live in. We are living in an Information Age, and we don't know what our [digital] rights are or should be. We don't even know what we want them to be!"

He's absolutely right. We desperately need to work together to define cyber rights for today's users and generations to come. It's time we got this discussion going. ◗

CATHY HYATT

Celebrate IT

WHAT'S GREAT about IT? In today's tough economic climate, in which IT has been especially hard-hit, this may seem like a strange question.

We see bad news almost everywhere we turn: layoffs, stagnant IT budgets, reduced opportunities and increased workloads. These conditions make it more difficult than ever for IT professionals to identify and celebrate their strengths and successes, but those who do have found that it makes good business sense.

Identifying strengths and successes can seem like a waste of time, or worse, when you're confronted with a seemingly endless list of problems and crises. But doing nothing but problem-solving can lead to trading blame and finger-pointing. And groups that know how to identify and build on their strengths and past successes often find common ground from which collaborative problem-solving can be more effective.

While some of the data supporting the effectiveness of building on strengths and successes is new, the concept is not. For years, human resources departments have been advising us to tangibly reward success. But even noticing success can be difficult for IT people: As skilled analysts, we're trained to identify problems, search for root causes and explore alternative solutions.

All the same, that analytical skill can be used to build on success. If you use it to identify the strengths and conditions that contributed to a success, then you can increase the value of that success by making it repeatable. The payoff is that recognizing successes, even small ones, increases morale and confidence, especially during difficult times.

When looking for successes, don't stop at the obvious suspects, such as projects completed or milestones passed. One of IT's greatest strengths is its ability to respond quickly and creatively to disaster. I know of a

group that was given 48 hours' notice that its Internet service provider was going out of business. This group quickly came up with, not one, but two solutions and ensured that its company experienced no downtime during the transition to the new ISP.

Very few users even knew about this big win; in fact, some of the IT people involved considered it just part of their jobs. Yet this group's manager took the time to acknowledge and celebrate the team members' success, increasing their confidence that they could successfully handle the next crisis.

So to answer the question posed earlier, "What's great about IT?" I'd have to say, "It's the people." The people who use their strengths to create success out of disaster every day and who maintain their dedication and commitment in the face of adversity (and layoffs). What's great about IT? You are. And it may be more important to find and celebrate your successes now than it has ever been.

THORNTON MAY

Imagining IT's Future

VISITORS FROM another planet scouting the state of IT today might report back to their superiors that Earth's technology industry is very sick and probably dying. The extraterrestrial analysts might be misled by Oracle CEO Larry Ellison's self-serving, totally unimaginative and all-too-frequent media appearances portraying competing vendors as a gang of plunging skydivers having but two parachutes to share among themselves.

Both the aliens and Larry would be wrong in their assessments. Our technology future isn't going to be a soul-destroying slog toward a homogenized only-three-vendors-left-standing endpoint.

Instead, I believe that a significant subset of IT leaders is on the cusp of an imagination-driven renaissance in technology-enabled value creation. There remains a broad assortment of valuable endpoints — things to do with IT — and an intriguing set of options for doing them.

Not everyone will enjoy this renaissance. Research conducted in association with the Fisher College of Business at Ohio State University documents that 63% of the CIOs in the Global 2,000 got their jobs because their predecessors performed "suboptimally" (academicspeak for "they stunk"). Approximately 25% of these CIOs have been in their jobs less than two years. Since it typically takes about 18 to 30 months to remediate a "broken" IT shop, one out of four IT leaders will be too busy fighting alligators to actively engage his technology imagination.

THORNTON MAY is a longtime industry observer, management consultant and commentator. Contact him at thorntonamay@aol.com.

While those CIOs are busy in the swamp, the other 75% of IT leaders operate their shops in a nontoxic manner, maintain a pretty good relationship with the suits and have an opportunity to do something very significant with its next round of technology investments. That potential upside will be driven by technology imagination, so we need to explore the art of the possible. What should we do with the amazing array of powerful and increasingly affordable technologies before us?

Lest we forget, in a very soft economy and a very troubled industry, technology vendors continue to spend *billions* on research and development. Technology advances aren't slowing down.

"We will make as much progress in the next 18 months as we had during the entire history of computing up to today," predicts longtime industry player Ray Kurzweil, author of *The Age of Spiritual Machines: When Computers Exceed Human Intelligence.*

Think about it: Processing power continues to double every 18 months. Storage capacity continues to double every 12 months. Bandwidth throughput continues to double every nine months. Our challenge is to imagine how to make bags of money with this silicon cornucopia.

With the mainstream world we live in beginning to take on many of the hyperinformational characteristics of the imaginary world William Gibson created in his novel *Neuromancer*, many in the mainstream have run out of gas and can't imagine what comes next. They're too busy.

But IT doesn't have to fall into that trap. You not only need to make the time, but you also need to address this exercise properly. Consider adopting the best practices of überimagineers:

- Never imagine alone.
- Involve thinkers from other disciplines.
- Imagine along your vector of greed (great problems stimulate great imaginings).
- Time-box (hard-deadline) your thinking.

In Gibson's latest novel, *Pattern Recognition*, one character tells us, "We have no future because our present is too volatile. We have only risk management." Isn't the biggest risk that our imaginations will fail to come up with solutions worth building or worlds worth living in?

WANT OUR OPINION?

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READERS' LETTERS

Buying No Panacea

I ENJOYED Steve Ulfelder's article ["Buy! No, Build!" QuickLink 38533], taking comfort in knowing that we're not the only ones debating this issue. The city of Olympia instituted the practice of buying rather than building in 1997, with mostly positive results, but off-the-shelf is no panacea. There are factors to be weighed, some of them similar to those mentioned in the article. The first challenge is to define the business requirements. That's easier said than done, since most end users don't want to take the time. The acquisition process takes considerable time and effort (RFPs, demonstrations, evaluations, customer references, etc.).

Once a purchase is made, it is, as Ulfelder states, a shotgun wedding. Vendor relationships require a lot of time, endurance, patience, assertiveness and open communication. When you're paying as much as 18% of the purchase price each year, everyone had better be on the same page. Vendor performance is a critical success factor. Lack of quality assurance on the vendor's part can adversely affect your reputation among your customers. Also, it's important to understand the vendor's strategy and technological direction. If the vendor isn't moving forward, you have to decide how long to stay with it.

We're now seriously considering building some applications to utilize .Net technology. This may be less expensive in the long run for some applications. But we must analyze this from a business perspective and not from an emotional or turf-protection perspective.

Herb Potter
IS manager,
city of Olympia, Wash.,
hpotter@ci.olympia.wa.us

Offshore Debate

IN THE LAST SENTENCE of his May 26 letter on offshore outsourcing [QuickLink 38470], Bob Fately says, "While my sympathies go out to those caught in this difficult situation, in the grand scheme of things, there is little that can be done." But something can be done. The federal, state and local governments contribute significant portions of their budgets to the purchase of IT services, and they could require that no offshore assets be used on government projects. Companies that must adjust to meet this requirement may rethink their commercial market strategy as well, and I am confident that they will realize that having two development strategies, offshore and onshore, isn't cost-effective.

Thomas Ohlendorf
IT specialist, Centers for Medicare and Medicaid Services, Baltimore

Bob Fately responds: Mr. Ohlendorf is, in essence, suggesting a form of tariff to protect the more costly homegrown services. The result of the government insisting that domestic workers produce software is that the government will spend $10 of my tax contribution where $6 could do the job.

AMERICAN BUSINESSES using outsourcing and cheap foreign labor are hurting the economy more than they're helping it [QuickLink 38829]. Replacing the American programmer with a Third World source is cheap monetarily, but I see this trend going the way of the Yugo. Here's why:

1. Money paid to Third World nations is one-way; it isn't recycled back into the American economy.

2. American workers are displaced and unemployed, with no money to buy the products being made offshore.

3. Our stockpile of homegrown technical resources will be diminished.

4. Power isn't just wealth; technology is a resource that's infinitely greater than oil. We can and we must reverse this trend.

Julian Caesar
Data processing consultant,
Octagon Services,
Hartford, Conn.

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CASE STUDY

Sticking to Policy at OneBeacon

OneBeacon Insurance hopes a $15 million investment in a Web-based policy administration system from Sapiens International will help it return to profitability. **Page 25**

Call Centers Build on IP

Networking professionals like H.B. Fuller's Kevin Wetzel say call center systems with integrated IP telephony are resilient and let companies create call centers anywhere and bypass charges for toll calls. **Page 28**

OPINION

Era of Expansion Ends: Time for Restructuring

As a new age dawns for corporate IT, the focus will change from acquiring assets to maximizing value, says Paul A. Strassmann. **Page 32**

HANDS ON REVIEWS

LAPTOPS FOR THE LONG HAUL

Intel's new CPU delivers extended battery life in Centrino notebooks. By Russell Kay

THE BIGGEST problem with laptop computers has always been too-short battery life. Sure, it has improved over the years, and you could always carry an extra (heavy and expensive) battery, but having enough power to last through a coast-to-coast flight — or even a single DVD movie — has been the exception. Finally, however, laptop makers are taking that problem seriously, and the first products of a new generation will run a lot longer than their predecessors.

In April, Intel Corp. announced the Pentium M processor, the first designed from the beginning for laptops. Featuring a more highly pipelined architecture that allows more efficient computing at lower clock speeds, the new CPU's design gives top priority to reducing power requirements in order to extend battery life. The whole technology package, which includes built-in wireless networking, is called Centrino (see "What's in a Name?" page 24).

I tried out four of the new Centrino laptops: the IBM ThinkPad T40, the Dell Latitude D600, the Toshiba Tecra M1 and the Fujitsu LifeBook P5000. (At the time I began this review, Hewlett-Packard Co. didn't offer any full Centrino models.)

The ThinkPad, Latitude and Tecra are mainstream notebooks, direct competitors for the enterprise laptop market. All are solid, sturdy machines with 14.1-in. displays, full-size keyboards, big hard drives and plenty of RAM. They use the same accessories as other machines in their families, such as docking stations and removable drives, and all are committed to the predictable life cycles and continuing compatibility.

The LifeBook is quite different; it's a subnotebook that emphasizes portability with its 10.6-in. wide-format screen in a small, 3.8 lb. package that includes a built-in optical drive — something none of its competitors, such as Sharp Corp.'s Actius MM10 and all Tablet PCs, can offer.

Performance

I don't normally run benchmarks or other instrumented tests, but this time I wanted to see just how the new Pentium M processors performed. I chose the MobileMark 2002 suite from Business Applications Performance Corp. in Burlingame, Calif., to get useful comparative data on battery life and overall performance.

In addition to the four machines listed above, I tested a Toshiba Tecra 9100, which is the pre-Centrino predecessor of the Tecra M1 that uses a 2.2-GHz Pentium 4 Mobile (P4M), so I could compare the new Pentium M's perfor-

Continued on page 24

ThinkPad T40

PROS: Long battery life, great keyboard, thin profile, lighted keyboard

CONS: No built-in flash card slots

Tecra M1

PROS: Long battery life, presentation button, SD slot, brightness sensor, three USB ports

CONS: Expensive, heavy

Latitude D600

Dell Computer Corp., Round Rock, Texas, www.dell.com

PROS: Great keyboard, dual cursor controls

CONS: No built-in flash card slots, short battery life

LifeBook P5000

Fujitsu PC Corp., Santa Clara, Calif., www.fujitsu.com

SPECS: 10.6-in. wide-format display (1,280 by 768 pixels), 900-MHz Pentium M, 40GB hard drive, 256MB RAM, combo DVD/CDRW optical drive, 3.8 lb., $1,699 as tested.

PROS: Small, lightweight, 1394 port, memory stick slot

CONS: Small display, single memory slot

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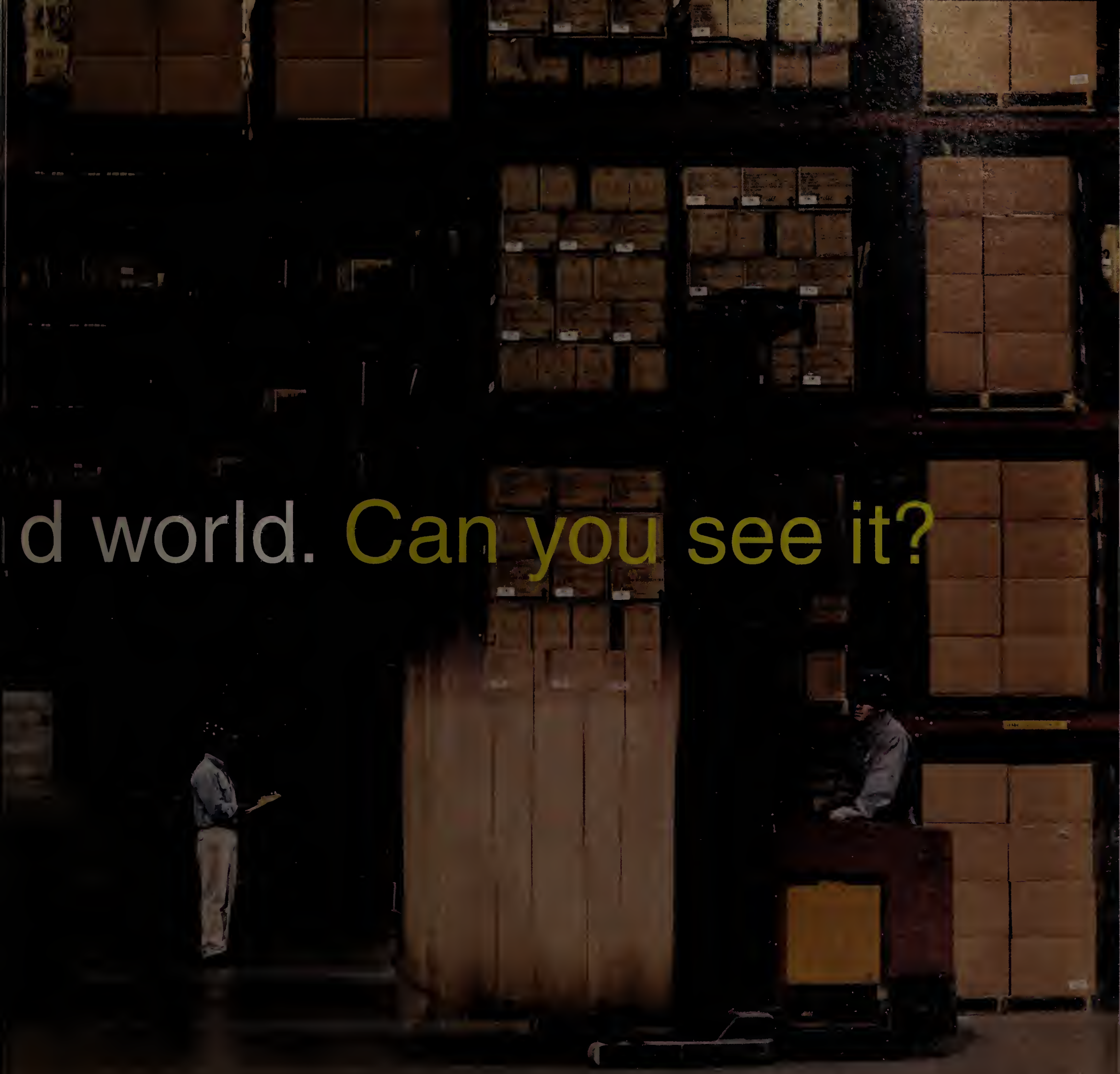

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Continued from page 21

mance with its slower older brothers.

The benchmark runs a script that invokes actions in a variety of Windows-based applications, including Microsoft Office XP, Adobe Photoshop 7.0, McAfee Antivirus and WinZip. Prior to running this benchmark, I disabled power-saving options and turned on the wireless networking feature. Thus, I was testing under worst-case conditions; in normal use, you can expect somewhat longer battery life.

Good news: The new CPUs really do deliver better battery life. The LifeBook P5000 has the smallest battery. Even so, its nearly three-and-a-half-hour battery life was notably better than that of the Fujitsu model I reviewed two years ago [see story, QuickLink 24271]. I also ran the benchmark with the Wi-Fi switched off, adding 35 minutes of battery life.

The ThinkPad T40 ran for just under four hours with its standard, six-cell battery. With a nine-cell high-capacity battery, which sticks out an extra inch from the back, the ThinkPad delivered almost six hours.

The heavyweight Tecra M1 ran for over five hours on its standard battery. The Latitude came in at a little over three hours — good compared with its predecessors, but not up to snuff in this group. In comparison, Toshiba's Tecra 9100, with its P4M processor, gave up the ghost in less than two hours running the benchmark.

Based on the benchmarked performance results, the new computing architecture works well, but the results among the new machines were closer together than I expected. The 1.5-GHz Pentium M in the ThinkPad performed at a level equivalent to a 2.62-GHz P4M, as did the Tecra's 1.7-GHz CPU. The Latitude's 1.6-GHz CPU turned in a slightly higher performance number. The LifeBook's 900-MHz CPU computed as fast as a 2-GHz P4M.

I encountered some problems getting the benchmark to run on the Dell and Toshiba notebooks; the ultimate solution was to obtain a second sample of each, and both of those ran fine. However, even the units that wouldn't run the benchmark seemed to perform fine in normal use.

However, there is one compatibility issue: Some early Centrino users have reported problems in using virtual private network software from Nortel Networks Ltd., though a work-around is available. [For details, see QuickLink 38802.]

Features

Today's laptops represent many generations of development and design refinement. By now, most features are pretty well worked out, especially in the mainstream corporate models.

The IBM, Dell and Toshiba all come with both a touch pad and a pointing stick for cursor control. Most people seem to like one of these devices and hate the other, so having the choice is a real plus. And all three have excellent full-size keyboards with good touch.

Removing the optical drives is easier than in earlier laptops. Just push in a tab on the front of the drive, and a handle for pulling out the drive module pops out.

Overall, the ThinkPad and Latitude are excellent machines, relatively small and light despite having 14-in. displays. The Tecra has slightly better sound and other amenities (including a hardware volume control that's accessible when the machine is closed, a "presentation" button that simplifies using the machine with an external projector or monitor, and a slot for secure digital memory cards), but it's a full pound heavier than the other two. It also has an ambient light sensor that regulates brightness to further extend battery life.

Fujitsu's laptop is in a class by itself. Compared with the earlier P2000, whose keyboard was taken from the LifeBook B series, the P5000 keyboard has noticeably improved. The keyboard is still on the small side, but the Enter and Shift keys have been enlarged and moved to where I'd expect to find them. Interestingly, this is the only notebook I can recall on which there's no latch for the display lid, but this wasn't a problem when carrying or using the machine. The small, wide-format (1,280-by-768-pixel) display is bright and very sharp.

Choices

I like all of these machines, and I wouldn't hesitate to recommend any of them. Because each of the units I reviewed is configured slightly differently, I priced a "standard" configuration for each that includes 512MB of RAM, a 1.6-GHz processor, a 40MB hard drive, an SXGA+ display and a combination DVD-ROM/CDRW optical drive. The Dell is the best value — if you can live with its shorter battery life. In my standard configuration, the ThinkPad is more expensive, but cheaper configurations are available.

Overall, for my own use, I'd pick the lightweight and 1-in.-thin ThinkPad — even if I were spending my own money. The Toshiba was nice but is just too heavy. The Fujitsu LifeBook is designed primarily for portability and wouldn't be my choice for daily use.

Kay is a Computerworld contributing writer in Worcester, Mass. Contact him at russkay@charter.net.

WHAT'S IN A NAME?

WHEN INTEL

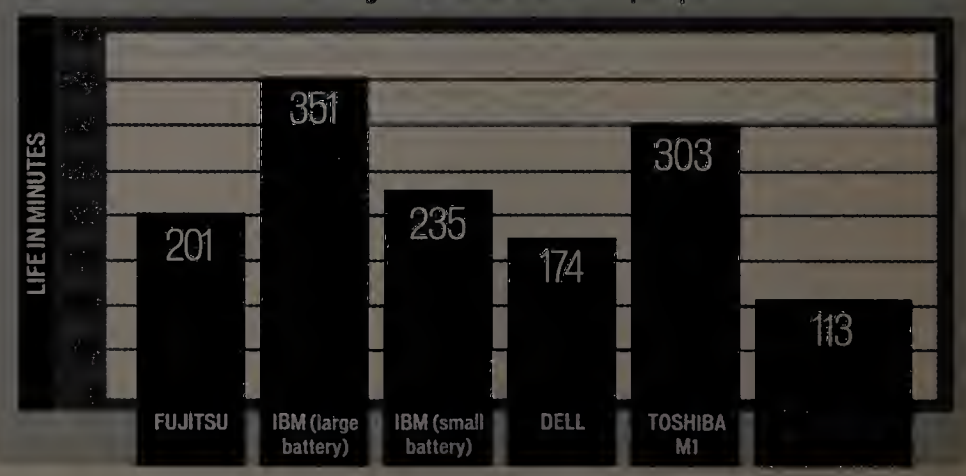
FEATURES AND BENCHMARK

For a comprehensive list of each laptop's features and a chart of their benchmarks, visit our Web site:

QuickLink a3390
www.computerworld.com

Relative Performance:
Pentium M (Centrino) vs. Pentium 4 Mobile

Battery Life: Centrino laptops



STICKING TO POLICY AT OneBeacon

The insurance company uses a Web-based policy administrator to put its IT house in order. By Lucas Mearian

TWO YEARS AGO, OneBeacon Insurance Group was bleeding out $50 million a month from inefficiencies throughout the company, including an IT department rife with cost overruns, poor accountability and poor communication with the business side of the house.

One major IT project that was supporting the launch of a commercial line of insurance had run years over schedule and hadn't returned any results. OneBeacon's IT infrastructure was so expensive and inefficient that it was threatening the company's ability to provide small-business insurance coverage, says OneBeacon CIO Mike Natan.

"We had problems in terms of being very expensive, and we didn't have a good track record in terms of delivering," says Natan.

A $15 million investment in a Web-based policy administration system from Sapiens International Corp. will help bring the company back to profitability, according to Natan.

OneBeacon's existing underwriting system required a lot of manual intervention, he says. Field agents would fill out forms and fax or phone them in, and then data entry clerks would input the information. The process cost about $15 per policy to run. The new platform, running on an IBM zSeries mainframe, DB2 database and HP-UX Web servers, will cut that cost in half, to about $7 per quote, Natan says. It will also cut the time required to issue a policy from a week to 15 minutes.

That will allow OneBeacon to begin offering insurance coverage to small commercial businesses, something that was impossible before because the high cost of quotes didn't justify the return.

The Unix server will handle all Web interactions with agents, including different insurance quotation screens, and a rules-based engine driving the actual quotation application will reside on the mainframe. It will score insurance risks based on input and approve or disapprove potential policies. Both platforms will be tightly integrated on the back end in order to share data for fast quotation responses.

CASE STUDY

Distributed Network

OneBeacon's rollout is somewhat unique in that it constitutes a distributed network by allowing more than 1,000 agents to download the underwriting system onto PCs and laptops and use a back-end system to get nearly instantaneous quotes, industry analysts said.

Between the savings from retiring the old underwriting policy administration systems and new revenue resulting from a new line of small commercial business with additional products, Natan says, OneBeacon will realize a return on its investment in less than a year.

OneBeacon has been working with Research Triangle Park, N.C.-based Sapiens for 10 months to create a system it's calling Policy Insight. The company rolled out the application for its commercial automobile insurance business in April and plans to add its individual auto and workers compensation insurance programs by early next year.

"Frankly, the biggest challenge was to get the right set of people on the project team. We had up to 50 people in the team at its peak. It was a very intense work environment. Most team members were putting in 70- to 80-hour weeks," Natan says.

He also expects significant savings from staff reductions. When Natan took over as CIO in 2001, there were 750 IT staffers. Today, there are about 500, and Natan plans to drop that number to 350 by the end of 2004. A large number of the staff reductions resulted from replacing seven disparate administration systems that came from mergers and acquisitions with one new application that ties together mainframe and client/server systems.

Larry Goldberg, senior vice president of Sapiens Americas, says it's not uncommon for insurers to have multiple policy systems that are 15 or 20 years old and don't talk to one another.

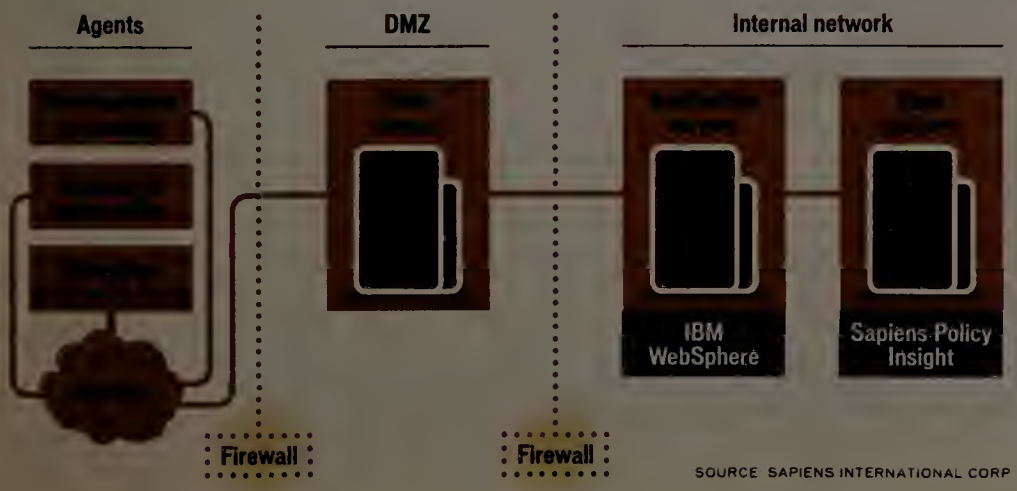
He says Policy Insight's rules engine is the middleware tying the back-end systems together. It is hidden from agents and appears as a Web interface to end users, who can configure the rules on their laptops.

OneBeacon, formerly CGU Insurance Inc., was purchased two years ago for $2 billion by Hanover, N.H.-based White Mountains Insurance Group Ltd., which downsized OneBeacon's coverage area from 48 states to seven states in the Northeast. The new quotation system is currently live in Maine and will be rolled out in the other six states over the summer. The system allows agents in the field to send customer information into Policy Insight, which will then score it for risk and approve or disapprove the policy. "Any red flags that are raised electronically get referred to an underwriter who decides to proceed or not," Natan says.

Jamie Bisker, an analyst at TowerGroup in Needham, Mass., says that while OneBeacon's project follows an industry trend of automating the underwriting process, it's cutting-edge in that it uses a distributed network.

"You're going to see more of these automated systems," he says. "The general idea is to reduce cost but also increase accuracy and the convenience for the broker and consumer. It provides consistency across the underwriting process as well as across the business process."

POLICY INSIGHT AT ONEBEACON



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Call Centers BUILD on IP

IP telephony is bringing new flexibility to the call center.

By Matt Hamblen

WITH IP TELEPHONY just starting to gain a foothold in many organizations, it's not surprising that research firm McGee-Smith Analytics in Pittstown, N.J., estimates that just 1% of the 80,000 call centers in the U.S. today are using applications built to run over converged IP-based voice/data networks.

But within the next five years, analyst Sheila McGee-Smith and others expect 20% of organizations using call centers to be running IP-based call center systems, which offer features such as automated call distribution, contact management and computer/telephony integration.

Call center managers cite several reasons for the expected transition, including the fact that it costs less to run one converged IP network than it does to run separate lines for voice and data, says McGee-Smith. IP-based call center systems also support improved integration with CRM systems and other business applications, facilitating the sharing of customer data.

But converged call centers have another big benefit. "The top driver of IT call centers is that they allow remote connectivity," says Katrina Howell, an analyst at Frost & Sullivan in New York. Indeed, call center agents can move to any location with a network jack to receive calls, whether at home or abroad. And since call routing can take place over the corporate WAN, toll charges are reduced, which can vastly lower costs.

McGee-Smith notes another virtue: Developers can modify IP-based call center software using open standards such as XML and HTML, rather than having to learn a special language and use proprietary application programming interfaces.

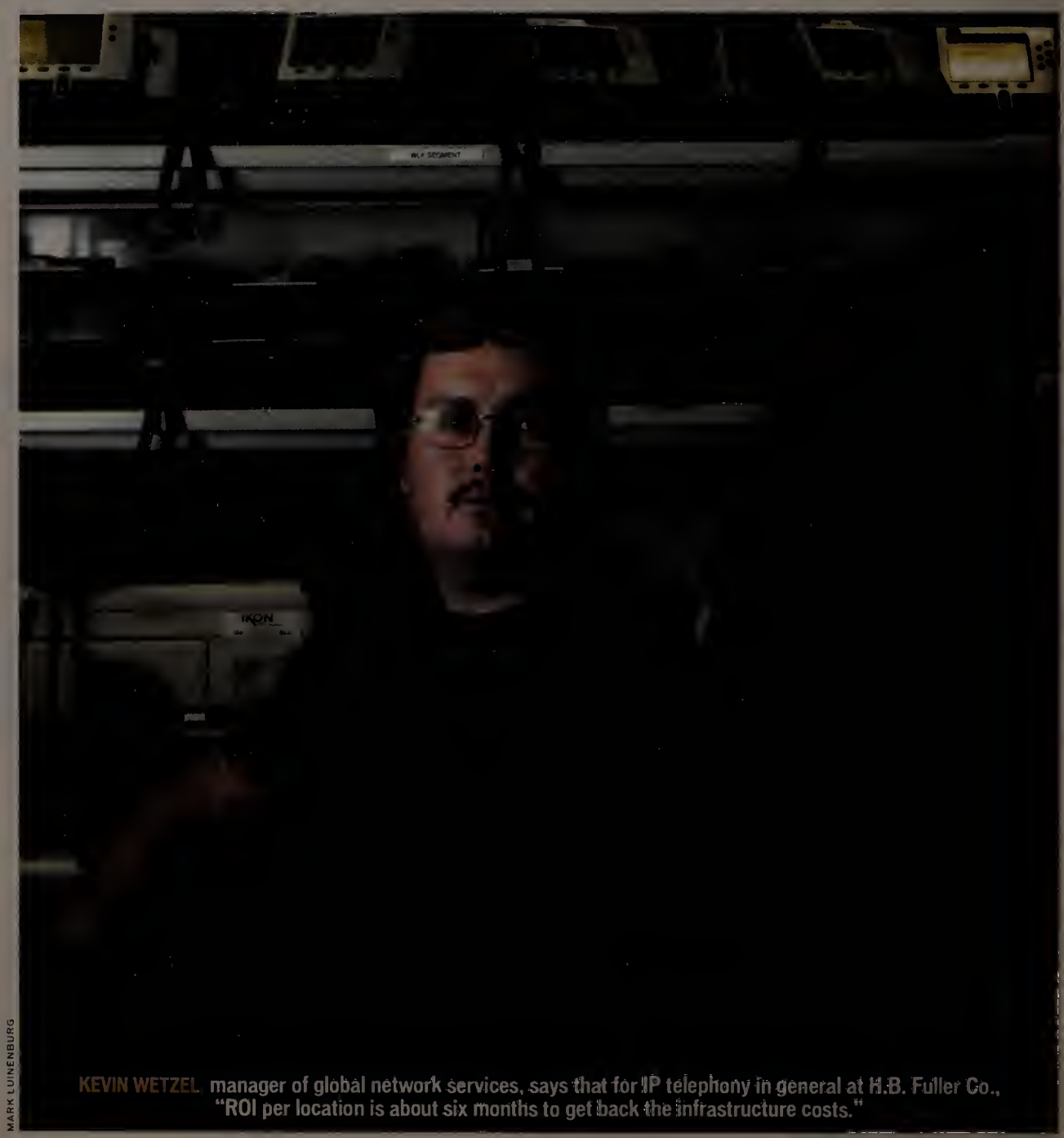
The changeover to IP started about three years ago but has been limited to small and medium-size call centers, Howell says. Migrating to an IP-based installation is still too expensive for the big call centers, which can have as many as 10,000 agents processing credit card accounts or airline reservations, she says. One reason is that an IP-based call center system requires upgrading the private branch exchange (PBX) or replacing it with a native IP telephony system. The big uptick should begin in 2005, Howell says, when many corporations will begin replacing the PBXs they installed in 1999 to address Y2k issues.

Global Savings

Global adhesives manufacturer H.B. Fuller Co., which began adding IP-based call center technology in 2001, has realized more than $2 million in savings, says Kevin Wetzel, manager of global network services at the St. Paul, Minn.-based company. IP telephony and call center servers in one location now service the needs of five call centers in St. Paul, each staffed with seven to 35 agents, over a corporate WAN.

With a traditional system, Wetzel says, he would have needed a $500,000 PBX in each call center. Instead, he uses data network switches and IP call management software, along with IP Contact Center software (now called IPCC Enterprise Edition) from Cisco Systems Inc.

Although Wetzel won't say exactly what he spent overall, he does say the Cisco IP phones and server software alone cost less than $1 million. Wetzel ex-



MARK LUINENBURG

KEVIN WETZEL, manager of global network services, says that for IP telephony in general at H.B. Fuller Co., "ROI per location is about six months to get back the infrastructure costs."

pects to realize more savings as six European call centers move to IP telephony by the end of the year. All will be run from the St. Paul-based contact center servers.

Weztel also expects savings because he won't need a separate telephone line to each desktop. One Ethernet cable will run to each Cisco 7960 phone, which includes a second port to network the desktop.

H.B Fuller's long-distance calling costs for interoffice call routing have been completely wiped out, Wetzel says. In Latin America alone, he estimates that he has cut $100,000 in costs per year by avoiding toll calls back to St. Paul.

> **"The IP component is undoubtedly making it economically feasible for us to install new call centers."**
>
> **KEVIN WETZEL,** Manager of global network services, H.B. Fuller Co.

The system has also enhanced the way the call centers function, Wetzel says. It's now possible to add functions such as agent call distribution and computer/telephony integration less expensively. One copy of the software can serve many call centers, whereas with the PBX-based system, each call center had to have its own copy.

The agent distribution software has eliminated problems with dropped or incorrectly transferred calls, and Wetzel says staff and overhead costs are lower because he no longer has to manage telephone switches at each call center. "The IP component is undoubtedly making it economically feasible for us to install new call centers," he says. "In general, our ROI per location is about six months to get back the infrastructure costs."

Getting Personal

Restaurant equipment distributor Franklin Machine Products Inc. (FMP) in Marlton, N.J., migrated its 35-agent call center to an IP-based system about a year ago. Bob Fisher, director of IT, says the system was an affordable way to handle the growth in call volume and still retain the human touch with customers. The call center had a mandate, issued by the company's president, that every customer be greeted by a live receptionist.

FMP chose an Avaya IP Office system from Avaya Inc. in Basking Ridge, N.J. The system handles 1,500 calls per day, and calls that can't be routed immediately to the receptionist go to an automated attendant that lets customers choose to speak to another staff member, wait for the receptionist or leave a message.

At the time that Fisher selected Avaya, the vendor offered the only product that could alternate between having a person answer or having the system answer. "All the others had the person answer all the calls or the system, but we wanted something in the middle," Fisher says.

It took FMP just one year to recoup the $100,000 it spent on the new call center software, in part because the company no longer loses calls when the receptionist can't answer them, Fisher says. Also, when agents are added or changes are made to the systems, maintenance costs are much lower than they once were. Other applications have helped with sales reporting, tracking how many calls each agent receives and how long agents spend on each call.

Ultimately, the move will help FMP because its customers — restaurant managers who order equipment — are slowly becoming more computer-savvy. Fisher foresees the day when a restaurant owner or manager will be able to access the FMP Web site and quickly establish a chat session or voice conversation over the Internet. And if FMP opens a West Coast call center, hooking the two systems together would be "no problem," he says.

The biggest obstacle FMP overcame was getting sales personnel used to the new IP phones, which have more buttons and functions, Fisher says. "It was a steep learning curve for a month, like replacing your favorite pair of old slippers," he says.

India Comes to Seattle

Call center service provider vCustomer Corp. built its entire business on its Cisco-based IP telephony system, setting up the gear in its Seattle headquarters and hiring 1,800 English-speaking agents to work in call centers in New Delhi, says Jeff Wasierski, vice president of technology.

VCustomer's clients are U.S.-based retailers and computer companies that require a stable base of agents, in many cases with technical backgrounds, to handle customer service calls. The company also must be able to scale up quickly to handle the vast surge in calls that occur during sales increases around holidays.

The system allows vCustomer to quickly add dozens of seasonal agents, Wasierski says. Calls can be routed internally to its call center and tech support team in India without incurring toll charges. The company can find qualified staffers in India, where personnel costs are one-fourth what it would pay in the U.S., he adds. "We land our clients because of the cost of our service and keep them because of the quality of our agents," he says.

In all, vCustomer spent less than $3 million on its IP call center system, and it estimates that the 2-year-old system will pay for itself in another 18 months. Savings come mainly from Indian labor and the Seattle-based IP telephony infrastructure, which costs about 75% of what it would cost to run a digital PBX system, Wasierski says.

With the system, vCustomer's clients can use a Web-based interface to monitor the volume of calls they are getting and the number of customers who are on hold, Wasierski says. The remote monitoring would not have been as easy without IP telephony, he adds. "It's like it's happening on the floor below them," even when they are half a world away, he says.

Wasierski was worried that the system wouldn't be resilient with a "constant hammering" of a million calls each week during peak times. "But I've been pleasantly surprised," he says.

Wasierski says one key to success is finding a competent integrator and reviewing two of its recent implementations. In his case, the Cisco integrator "had no idea what it was doing," partly because the technology was so new. As a result, vCustomer had to scrap the integrator's work and start over, building the entire system in-house. "That was a learning experience," he says.

> **"We land our clients because of the cost of our service and keep them because of the quality of our agents."**
>
> **JEFF WASIERSKI,** vice president of technology, vCustomer Corp.

Vegas.com Bets On IP Line Cards

Online and phone travel-reservation center Vegas.com has gone from zero to 1 million calls per quarter since its launch a little more than a year ago. To accommodate that growth in its call center, the Henderson, Nev.-based company used IP line cards and IP phones to extend the life of its PBX, says Brian Hayashi, the company's engineering manager.

Vegas.com's agents help customers book hotels and shows. The company started last summer with a few agents and an automated call-distribution system implemented on a 2-year-old Nortel Networks Ltd. Meridian 11c switch. As the call volume rose, it maxed out the number of digital phones on the switch.

But Nortel offered IP line cards that would allow the addition of more phones on the switch. Each IP line card could support 24 IP phones, Hayashi says. Vegas.com spent about $18,000 to install 48 IP phones, and it plans to buy 48 more. The alternative – buying a larger PBX – would have cost $250,000, Hayashi says. The company's total IP investment for the call center was no more than $40,000 for phones and infrastructure, he says.

"Vegas.com is in start-up mode, and we need to be cost-effective, and we figured this was one way IT could help," Hayashi says.

The biggest challenge has been finding people with IP telephony skills. In Las Vegas, few service providers have that experience, he says, so in-house personnel have had to fill the gaps. "We did a lot of integration work," he says.

– Matt Hamblen

> **"Vegas.com is in start-up mode, and we need to be cost-effective, and we figured this was one way IT could help."**
>
> **BRIAN HAYASHI,** engineering manager, Vegas.com

Mumu Worm Makes a Mess

A worm leaves its mark – and exposes security deficiencies at remote offices.

By Mathias Thurman

SECURITY MANAGER'S JOURNAL

SOMETIMES in a large organization that has offices all over the world and only a small IT security staff, it takes a significant event to reveal security failures in remote offices. This is exactly what happened this week. Until now, it has been fairly peaceful around the office. Other than the regular projects and ongoing issues, there haven't been any fires to put out. But this week, a new wormlike virus took us by surprise.

Normally the IT desktop department handles viruses, but this one involved so many people and so many man-hours that my group ended up getting involved. The worm, Bat.-Mumu.A.Worm, or Mumu for short, hasn't taken the spotlight in the same manner as worms such as Melissa or Code Red, but our IT staff had to spend hundreds of man-hours dealing with it. We were taken by surprise because we were focusing on taking preventive measures to avoid being hit with three other viruses: SoBig, Bugbear and Lovgate.

We decided that these viruses had caused enough problems for other organizations that we wanted to be proactive. We spent so much time doing discovery work on what signatures to watch, and looking for updated virus definition files and getting them out to the workforce that we never saw Mumu coming until it had spread.

The three viruses we were originally watching for are similar in that they propagate by using e-mail distribution lists or a Trojan horse-like technique in which the worm attacks servers by scanning for vulnerable workstations. They differ in the messages and names of services, programs and registry keys they create or modify, but all increase network traffic, fill up e-mail inboxes and prevent legitimate mail from being delivered.

By contrast, Mumu attaches itself and copies its payload to drive shares on remote computers, which in our case have weak administrative passwords. The worm contains a set of batch files, some utility programs and a Trojan horse program that spreads to other computers. It copies a set of files to the vulnerable systems and remotely executes a script or batch file on that system, which sends the Trojan horse to yet more systems. Mumu scans for IP addresses similar to the IP address of the victim system, attempts to access a share via a default password and, if successful, copies over the various files and runs itself again.

> **We were taken by surprise because we were focusing on taking preventive measures to avoid being hit with three other viruses.**

Once we knew that some machines were infected, we accessed our Snort intrusion-detection system sensors on the infected network segments and began monitoring traffic.

By monitoring network traffic to several workstations known to be infected, we found common indicators, such as an increase of NetBIOS packets originating from those workstations. There's usually some NetBIOS traffic, but not in excessive amounts, especially on Port 445. Normally, most of it flows through Port 139. Our network engineers responded by limiting the amount of NetBIOS traffic generated, cutting back bandwidth utilization.

Remote Access

After more research, we discovered that almost all the infected workstations were in development departments in remote offices in India and southern California. But since all desktop systems are on the admin network, the worm was also able to propagate to other locations, including corporate headquarters.

Once we determined how to rid ourselves of the worm, we sent instructions to all desktop users. This was a big mistake, because the IT help desk received hundreds of calls from workers who thought their desktops were infected. Of course, the IT security department was copied on every one of these messages.

We also found that all of the desktops at our Indian site either had no virus protection software at all or used an outdated version. And in other remote locations, many desktops didn't have updated virus protection software or users had disabled it in the belief that the antivirus software slowed down their machines.

Eventually, we did rid ourselves of Mumu, but it took both manual steps and a virus definition update, which was released by Symantec Corp. a day after the attack began. (The company also sent a worm removal tool, which has been helpful.)

Now that we have eradicated Mumu, we face the much larger problem of enforcing the installation and proper use of our corporate antivirus software. That will be difficult because many remote locations, especially those overseas, provide their own IT support with no oversight from corporate IT. This needs to change. The Mumu episode attracted so much attention from executive managers that they have arranged a meeting to discuss it. Coming up with a way to enforce a common desktop configuration across the enterprise will be high on my agenda.

Initially, we'll conduct some manual audits by empowering individuals at various locations to review workstations to ensure that the most recent version of our antivirus software is installed and running on every desktop. We'll also have to ensure that the security policy on each desktop doesn't give individuals the ability to stop the antivirus service.

The long-term solution will be to get our hands on some robust, enterprise-class configuration and change-management software and get that infrastructure in place to mitigate future virus problems.

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com, or join the discussion in our forum: **QuickLink a1590**

To find a complete archive of our Security Manager's Journals, go online to **computerworld.com/secjournal**

SECURITY LOG

■ USER REVIEW

SecureCRT 4.0

COST: $99 per user
COMPANY: VanDyke Software Inc., Albuquerque
WEB: www.vandyke.com

I've been using SecureCRT for many years and recently upgraded to Version 4.0. I was pleasantly surprised. I use SecureCRT for gaining Secure Shell (SSH) access to our Unix servers. We use SSH keys to access those servers, and in the past, it was cumbersome for inexperienced users to manually create keys. Version 4 has a key generator that simplifies the process.

You can also save sessions so you don't have to keep reconfiguring a session each time you have to access a server, and tasks such as port-forwarding are easy to configure. Also, there are no more command-line options to remember. Just fill in the blanks, and SecureCRT does the rest.

At $99.00 per client, SecureCRT is a bit pricey considering that there are free alternatives. If you want bells and whistles, like automatic font-scaling in terminal windows, however, I recommend SecureCRT.

– Mathias Thurman

E-mail Gateway Gets Faster

Aladdin Knowledge Systems Ltd. has released eSafe 4, a new version of its e-mail content security gateway software. The vendor says the new release provides faster scans of e-mail traffic for spam and virus content. The product supports traffic loads of up to 25Mbit/sec per server and up to 5,000 concurrent users. ESafe systems can be clustered for higher throughput. A new application-filtering feature also blocks access to unauthorized HTTP tunneling applications such as peer-to-peer music file-trading programs and instant messaging agents. Pricing starts at $18,600 for 1,000 users.

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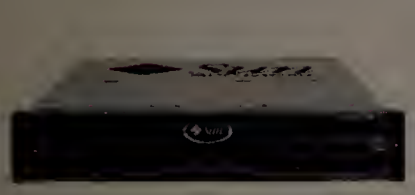

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*ULTRASPARC blades run Solaris 8 and 9, x86 blades run Solaris 9 for x86 and Red Hat Enterprise Linux once certified, Summer 2003.

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BRIEFS

Red Hat Linux Now Supports Itanium 2

Red Hat Inc. is selling new versions of its Enterprise Linux AS and WS server operating systems that will run on Intel Itanium 2 processors. The operating systems are available now, according to Raleigh, N.C.-based Red Hat. Servers equipped with Itanium 2 CPUs and the new operating systems will initially be available preconfigured from Hewlett-Packard Co. and Dell Computer Corp.

DYS Releases New Collaboration Suite

DYS Analytics Inc. has released its Collaboration Control performance management suite, which is available for IBM Lotus Instant Messaging and Web Conferencing, formerly known as Sametime. Collaboration Control provides real-time availability monitoring as well as enterprisewide traffic and usage analysis of instant messaging and electronic meeting applications, according to Wellesley, Mass.-based DYS. The product will be available on a per-seat basis.

Serena Builds in Support for Solaris

Serena Software Inc. in San Mateo, Calif., last week announced general availability of TeamTrack 5.8, the latest release of the process management tool it acquired last month from Colorado Springs-based TeamShare Inc. The tool now supports Sun Microsystems Inc.'s Solaris operating system.

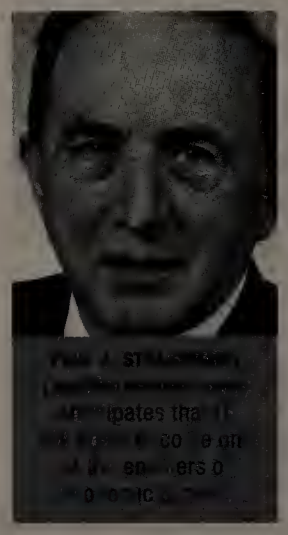
LANDesk Adds Patch Management

LANDesk Software Inc. in South Jordan, Utah, last week announced a patch management product to integrate with its LANDesk Management Suite, which will ship in the fourth quarter. Pricing wasn't disclosed, but LANDesk Management Suite Version 7 starts at $79.95 per node.

PAUL A. STRASSMANN

Era of Expansion Ends: Time for Restructuring

WE ARE AT THE END OF AN ERA in which the objective for IT managers was to acquire as many IT resources as possible. From now on, we'll have to squeeze as much value out of IT budgets as rapid restructuring will allow.



In the past 20 years, CIOs have thrived on expansion. Future CIOs will have to cope with meager dollar growth. They'll survive by rethinking how they spend the money in their budgets. The current allocations to hardware, software and services will have to shift because asking for substantial additional funds will be unacceptable. CIOs will have to be frugal about how they spend money and allocate the spending differently.

From 1980 to 2001, the typical IT budget grew 10% to 15% per year. The performance of IT also kept improving by at least 15%. It's no wonder that the dominant characteristic of the past 20 years was waste. You can't extract gains in productivity if IT insists on acquiring at a gluttonous rate.

Why were organizations unable to digest the IT capabilities? The explanation is simple. Each firm had to organize its IT department, train managers, educate executives, develop most of its software and integrate vendor offerings with disorderly legacy code. It was easier to junk and rebuild than to accumulate and grow. Vendors and consultants thrived, with revenues growing faster than IT budgets. Vendors and consultants reaped about 30% of total worldwide IT spending of $2 trillion in 2001.

The vendors and consultants prospered by selling goods without warranties and avoiding performance liabilities. The customer took all of the risks. If the technology didn't perform, customers had to buy the next upgrade or spend money fixing the mess.

This worked well for the vendors and consultants because foul-ups generated more revenues. It was also good for CIOs. They could justify bigger staffs and larger budgets to keep the IT machinery going. What we got was a technology contest, not a demonstrable economic gain.

But it's the 70% of IT spending that goes to internal corporate expenditures rather than vendors and consultants that's now the source of the greatest opportunity for improvement. Risks for IT management should migrate from customers to the vendors. Right now, customers must cope with technology obsolescence. That's a misplaced expense. The costs of excessive technology depreciation should be absorbed by vendors that often aim for increased obsolescence. Instead of buying software and then spending a huge multiple of the cost for integrating, fixing, maintaining and modernizing the technology, let the vendors deliver guaranteed application service. Start throttling back on software licenses (currently up to 25% of the total IT budget), on consultants and on the internal staff of maintenance programmers to keep systems from falling apart.

Instead, reassign most of your maintenance staff — about 20% of your budget — to value-enhancing improvements. Get the IT staffers out of the IT department and give them careers in business operations. Eliminate contract labor — another 10% to 15% of the budget. Your services vendors will have to assure systems integration as they deliver solutions. You'll rent application services and not spend time on IT housekeeping. In this way you can dispense with much of the overhead and concentrate on creating business value.

The next big opportunity is to cut the costs of your computing infrastructure. Even the largest organizations don't have a sufficient volume of work to justify the reliable, secure, redundant and flexible processing and networking capacity they currently support. In the compulsion for control, organizations still keep acquiring too many underutilized technology assets. The worst examples of such excesses are the 200 million desktop computers in offices throughout the U.S. Each has a full cost of well over $3,000 per year. If you examine the prices for vendors supporting desktops as a Web service, you can come to only one conclusion: It's only a matter of time before much of the standard computing and messaging infrastructure will benefit from such services at enormous savings.

IT is neither irrelevant, mature nor at a point of diminishing returns, despite such contentions in a May *Harvard Business Review* article (see story, page 36). It suffers primarily from mismanagement. The time has now come to cure that so we can get moving again.

WANT OUR OPINION?

For more columns and links to our archives, go to **www.computerworld.com/opinions**

Piecing It All Together

Enterprise application integration projects remain a top IT priority for 2003. Here's a progress report on two companies' efforts. **Page 40**

OPINION

Use 'Real Options' to Assess IT Options

Taking a cue from the stock market, CIOs can use real-options analysis to evaluate incremental investments in IT, says columnist John Berry. **Page 41**

IT Does So Matter!

In an interview in May, *Harvard Business Review*'s Nicholas G. Carr asserted that IT had lost its strategic value. In a virtual roundtable, four IT experts rebut his argument. **Page 36**

MARC BERLOW

JOHN GOLDEN of CNA Insurance looks for candidates who click with his company's culture.

COMPUTERWORLD 100 BEST PLACES TO WORK IN IT 2003

With turnover rates at an all-time low, these companies make sure the people they hire will fit the company culture for a long time to come. By Stacy Collett

Companies on Computerworld's 100 Best Places to Work in IT list share tips for finding – and keeping – the right employees.

MATCHMAKERS

WHEN JOB SEEKERS sit down for an interview with John Golden, chief technology officer at CNA Insurance Co., he sometimes hits them with this question:

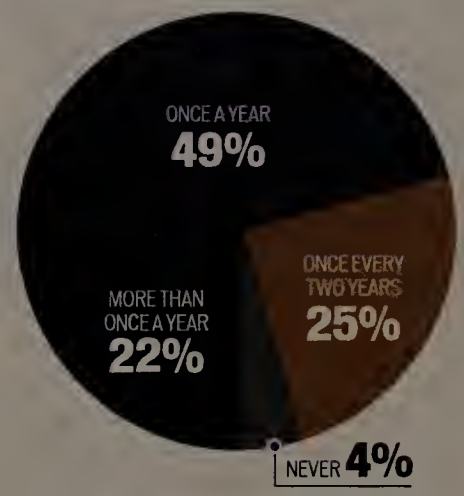
"You're stuck in traffic. What do you do?"

Some candidates say they would grab their cell phones, others that they'd leave the highway to look for an alternate route. A few say they'd get really mad. This isn't casual conversation. Golden believes that the response provides insight into a candidate's character, and it's one way the Chicago-based insurance firm ensures that new IT employees match well with the company's culture.

"There isn't a right or wrong answer, but it gives you a lot of insight about them, and now you can ask a lot of other questions," Golden says. "We need people who can adapt and change. We need people who can negotiate. We need strong communications skills. You can't garner those out of a résumé."

Finding the right match between employee and company has gotten trickier over the past few years, according to companies on *Computerworld*'s Best Places to Work in IT list [QuickLink a1950]. Human resources staffers, who once needed to sell the company's ideals to candidates who were weighing several job offers, now must carefully sift through hundreds of résumés, looking for the best candidate. What's more, unhappy employees aren't leaving like they used to. With turnover rates at less than 2% at these Best Places companies, the wrong hiring choice could have long-term repercussions.

HOW OFTEN EMPLOYEE SATISFACTION SURVEYS ARE CONDUCTED AT BEST PLACES TO WORK COMPANIES:



SOURCE: SURVEY OF TOP 100 COMPANIES ON *COMPUTERWORLD*'S 2003 BEST PLACES TO WORK IN IT LIST

"People who come here stay here. So we're pretty careful about the people we hire, because there's a good chance we could be working with them for 20 years," says Mark Horn, a business development specialist at American Family Mutual Insurance Co. in Madison, Wis., who has hired 50 IT employees over the past year.

All of these companies look for candidates who can lead, communicate and work with a team and who understand their businesses. Some try to forecast the long-term potential of college graduates, who will make up the bulk of their new hires.

Finding a candidate who clicks with the company's ideals and culture has transformed hiring into both a science and an art. The best companies have come up with creative and meticulous ways of identifying that perfect match.

Apply the Chemistry Test

At CNA Insurance, Golden keeps close tabs on "bad attrition" — the loss of employees who possess the "three C's": character, chemistry and capabilities. Right now, CNA's bad attrition is zero, thanks to the hiring team's growing ability to accurately read job candidates from the start.

MATCHMAKERS

Continued from page 33

CNA has found that an effective approach is to give candidates a hypothetical situation and "ask them to problem-solve themselves out of it," Golden explains. "How well rounded is the solution that they come up with? Do they talk about the people issues, the need for communication and common priorities? By the nature of what they talk about, it gives you an idea of how they approach the problem."

Senior-level job candidates are even subjected to a three-to-four-hour interview by an independent team of psychologists who measure each candidate's chemistry with the company. The questions are used to assess how open-minded the candidate is to other ideas, whether he seeks credit or gives it, and whether he always needs to be in charge, Golden explains. So far, 20 senior-level IT employees have been hired after passing the chemistry test, and all are performing well, he says.

Stock the Talent Pool

If you've recently spoken at an IT conference or were quoted in a trade magazine, chances are you're on Fannie Mae's list of potential IT job candidates.

At the Washington-based financial services company, an in-house recruiting database holds the names of thousands of qualified job candidates garnered from conference speaker lists, magazine articles and association memberships.

"We needed to be able to tap into candidates faster," explains Betty Thompson, vice president of human resources at Fannie Mae. "Managers often want to do an expensive search [through an outside firm]. We thought *we* could do it. Now, when the manager says he has four positions he needs to fill, we're presenting candidates within a week. Before, it would take a couple weeks." The database also saves Fannie Mae $8,000 to $15,000 in outside recruiting costs per new hire.

Encourage Friendly Referrals

Employee referrals rank as one of the best ways to find culturally compatible job candidates. AXA Financial Inc. in New York offers its employees $5,000 to $10,000 for bringing in qualified IT candidates who are ultimately hired. "That helps us with the cultural fit. They know who we are and what we do," explains Garr Stephenson, AXA's director of IT staff development.

Last year, more than 40% of Fannie Mae's new hires came from its referral program. "Your friends give you a realistic view of what it's like to work here," Thompson says.

Polish Diamonds in the Rough

At Minnesota Life Insurance Co. in St. Paul, 90% of new hires fill entry-level positions, and most of them come from the company's comprehensive internship program.

Minnesota Life's human resources department has developed relationships with professors in university information systems departments, and CIO Jean Delaney Nelson sits on the advisory board at a local college.

"We start them as interns, and it gives us the opportunity to integrate them into Minnesota Life and see how they fit into the environment," she explains.

Interns are chosen in their junior year based on academics and the leadership skills that they have demonstrated up to that point in college. Once in the program, they're assigned a three-month project.

"They really do give you real work, not just filing papers away," says Leah Hoeschen, a senior programmer analyst who started as an intern at Minnesota Life in the summer of 2000. "You actually add value, and you really do learn a lot." During her internship, Hoeschen worked on a computer/telephony integration application to develop pop-up screens that insurance agents use to quickly view customer information.

> **"You're stuck in traffic. What do you do? There isn't a right or wrong answer, but it gives you a lot of insight about them. . . . We need people who can adapt and change. We need people who can negotiate. . . . You can't garner those [skills] out of a résumé."**
>
> JOHN GOLDEN, CHIEF TECHNOLOGY OFFICER, CNA INSURANCE CO.

The economy has forced some companies to narrow their college recruiting focus. Two years ago, FedEx Services in Collierville, Tenn., visited 60 campuses across the country. "Now we're down to 12 to 15 campuses where we really spend a lot of time participating with student groups, sending people to conduct lectures," explains Julie Yancy, director of recruiting, training and support at FedEx Services.

Some 50% of the company's new employees come through its internship program, and new hires from those targeted universities stay an average of two to three years longer than recruits from other colleges.

3M Co. sends recent hires back to their college campuses with senior staffers to help with recruiting. Lyla Campbell, IT manager of employee development, tells them, "Pretend like this is your business and you're writing the paycheck out of your checkbook. Who would you be willing to pay to work next to you?" The St. Paul-based company offers full-time jobs to 62% of its interns, but it plans to increase that number to 80% over the next four years as it adopts new methods for long-term employment planning.

Make Them Happy Forever

Once companies snag those top performers, the next challenge is keeping them motivated. The most common practice for keeping great employees for the long haul is providing a variety of assignments during their careers.

Kathy Regan joined the IT department at United Parcel Service Inc. in 1987. During her tenure, she has accomplished six major assignments that have given her new skills and responsibilities. "It keeps the interest and excitement about a job," says Regan, now an application manager responsible for 355 IT staffers.

At Caterpillar Inc. in Peoria, Ill., IT staffers are even encouraged to leave the department and venture into other areas of the company. "We want to export IT people into Caterpillar at large because they understand the business," says Sid Banwart, CIO and vice president of the systems and processes division. "Many IT alums have been successful in other parts of the company." ◗

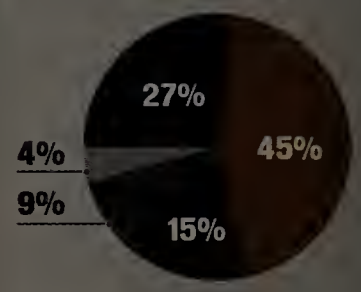
Collett is a freelance writer in Sterling, Va. Contact her at stcollett@aol.com.

EMPLOYEES RATE THEIR MANAGERS

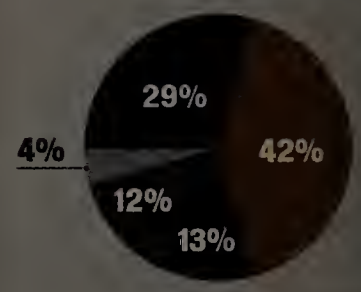
Employees at companies on *Computerworld*'s 100 Best Places to Work in IT list gave the following evaluations of management.

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

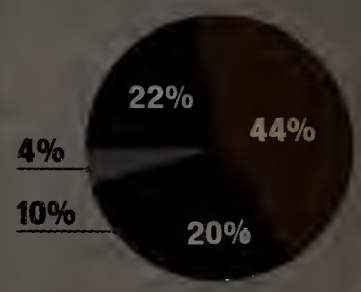
Management recognizes achievements and good work:



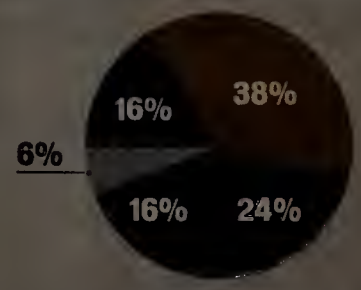
Management treats everyone fairly and equally, regardless of job title or function:



IT management is involved and interested in my career development:



IT management involves the IT staffers in decisions that affect their jobs:



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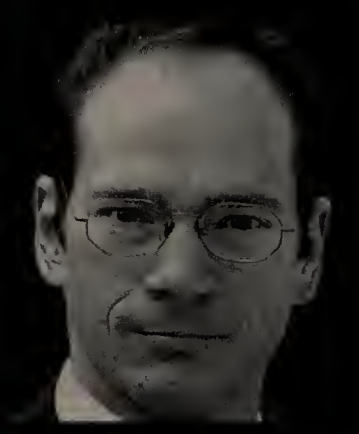

ANDREW McAFEE

PAUL A. STRASSMANN

TOM DeMARCO

IT Does So Matter!

A panel of big thinkers rebuts Nicholas G. Carr's assertion that IT has lost its strategic edge.

OUR RECENT INTERVIEW with Nicholas G. Carr about his article in the May issue of Harvard Business Review *caused an uproar in IT circles. His thesis, that IT has become a commodity that no longer provides strategic advantage, was so passionately refuted by readers and some of the big thinkers in the IT world that we felt compelled to give equal time to their views. Kathleen Melymuka spoke separately with* **Rob Austin** *and* **Andrew McAfee**, *both assistant professors of technology and operations management at Harvard Business School;* **Paul A. Strassmann**, *an IT management consultant, a* Computerworld *columnist and recently the acting CIO at NASA; and* **Tom DeMarco**, *a Cutter Consortium analyst and co-author of* Waltzing With Bears: Managing Risk on Software Projects *(Dorset House, 2003). They make the case for why IT matters more than ever.*

McAfee: I don't agree that IT doesn't matter, but I think Nick wrote a really interesting article. He provided a great service by focusing the debate.

DeMarco: It created a buzz, but it's not a healthy buzz. All the response doesn't imply a useful argument. It's traceable to the deep-seated ignorance of the article.

Carr says that information technology has become so pervasive that, like railroads and electricity, it has lost its strategic value. What's wrong with his argument?

DeMarco: The argument is not very well made. He presents three graphs: railroads, electric power and IT. Each has a very similar curve, so he deduces that information technology is commoditized. But what's really plotted in the graph is the number of computers, which is not the same as information technology. Boxes have been commoditized for a long time. This is very old news. But he tries to use this to prove IT as a whole is commoditized, and that's just wrong.

Austin: He says ubiquity, not scarcity, is the problem with IT. He seems [to think] that IT is primarily hardware. The problem is not a scarcity of equipment; it's always been a scarcity of ability — the ability to envision new possibilities from IT and understanding how to get it all to work. If IT were not a source of competitive advantage, you would rarely see IT projects fail. There are still vast differences in how much value people obtain from IT. Look at Wal-Mart, Dell, Cisco and their attempted imitators.

McAfee: It's a matter of whether we're talking about IT enhancing productivity or competition. The telephone has made us able to get more done in a day. Has the phone continued to radically affect the competitive balance among companies? No. That's Nick's point. Some kinds of IT fall into that category. For example, e-mail. We all have it; we all use it. But it's not competition-changing, so overinvesting in it is not a great idea. The bases of competition revolve around other things.

[But] there are industries where technologies are fundamentally important. Dell has an IT business-process automation infrastructure that really works. If you don't have one of those, do you have a hope of competing in that industry? And even if you want to put one of those in place, there will be a really big difference in how successful you are vs. another company, because it's tough organizational change in a technology wrapper. We're not equally good at doing it. If we find ourselves competing in an industry where these kinds of systems are important, then IT matters like crazy.

Carr says there's virtually no competitive advantage to be gained through IT, because anyone can buy what you buy. How would you respond?

The Article

In the May issue of *Harvard Business Review*, Nicholas G. Carr argued that IT has become so ubiquitous that it's losing its strategic value. His article generated controversy among many IT thought leaders.

■ NICHOLAS G. CARR

DeMarco: There may be no competitive advantage to buying IT. You can gain competitive advantage by innovating in IT. The number of examples is too obvious to belabor.

Strassmann: It is not what you buy but what you do with it. Carr most likely used the same Microsoft Word program to write his article as I used in my rebuttal [letter to *Harvard Business Review*], yet we got different results.

Austin: Geoffrey Moore talks about core and context. Context is the commodity stuff, and that's a pretty big percentage of IT. You can buy context anywhere, and that may be what Carr's talking about. Core is the stuff you compete on. Companies that succeed, or succeed faster, obtain advantage. Think of Wal-Mart's supply chain systems. Those are core, proprietary: They grew them or glued them together themselves. And surely that is providing competitive advantage.

Carr says that even when a company does achieve some competitive advantage through IT, it's bound to be short-lived. Isn't that true?

Strassmann: That is certainly not true. When Wal-Mart started 40 years ago, anybody could have gone to NCR and bought the Teradata system, which is really the basis of Wal-Mart's success. The fact that you buy identical technology doesn't buy you anything. It's how you manage it.

DeMarco: Change is fast and becoming faster, and anything you do will have a shorter payback than similar things you might have done a decade or a century ago. That proves you can't count on a single-shot competitive advantage, but you can gain a continuing advantage by being a continuing innovator in IT.

Carr seems to view IT as a corporate service akin to accounting or building maintenance. What is it about IT that makes it truly different?

Austin: He seems obsessed with the plumbing. He says it's hard to imagine a more perfect commodity than a byte of data. As we move to the knowledge economy, IT is not just a transport mechanism; it's a transformational mechanism. It's increasingly about the transformational potential of bytes.

DeMarco: When we talk about IT, it really is about change. If you want to change your company, you build an IT system to make it possible to do that change. That's why IT is hard. The idea of IT becoming commoditized is as silly as the idea that change is becoming commoditized.

Carr sees the future CIO as a bean counter, not a strategist. What do you see as the future role of the CIO and the IT department?

McAfee: It's really going to depend on the situation. A CIO in a headhunting firm might be a cost minimizer — really interested in wringing the maximum efficiency out of minimum technology. But the CIO of Cisco or Wal-Mart or Dell had better be a really different kind of person. He'd better be an IT strategist and an organizational change specialist and a business needs assessor and a tough cost minimizer, or he'd better be talking with all of them if he's not.

Austin: I think the CIO has to continue to facilitate the process of helping the business people understand the technical possibilities. That is not a beancounter role. It involves imagination, vision and the ability to explain that vision to people who are not native technologists. The business guys understand how to make a business work, and the technologists understand the potential in new technology, and the CIO has to get those two spheres to overlap.

Strassmann: Let's go back to fundamental economics. The financial assets CFOs report on account for less than a third of the value of a corporation. Two-thirds of the valuation is based on knowledge capital, which is information. The CIO of the future will be responsible for the custody and protection and security of knowledge capital. Right now only the CFO has to sign a financial statement. I predict within 10 years the CIO will have to sign for the security of knowledge assets. Right now only the CFO can go to jail. My hope is for the CIO of the future to be also eligible to go to jail.

DeMarco: There has to be an element of vision. That's the thing that can't be commoditized. Carr's advice to be a follower is so upsetting. He's saying, "Don't be a visionary." This is unhealthy, because some weak-minded but powerful person looking for something to cut will read Carr and say, "Let's cut IT." That's a shame. The view that IT doesn't matter is equivalent to the view that the printing press has had its run. But the printing press wasn't about printing enough Bibles for all the people. It was about creating a man whose knowledge is bigger than what lies in his head, and the impact of that has never peaked. I think that will be true of IT as well. Man is an information animal, and IT lies as close as anything to the core of his endeavors. ◗

FOR FURTHER READING

For a collection of opinion columns on the controversy, plus *Computerworld*'s interview with Carr and a link to a *Harvard Business Review* debate, visit our Web site:

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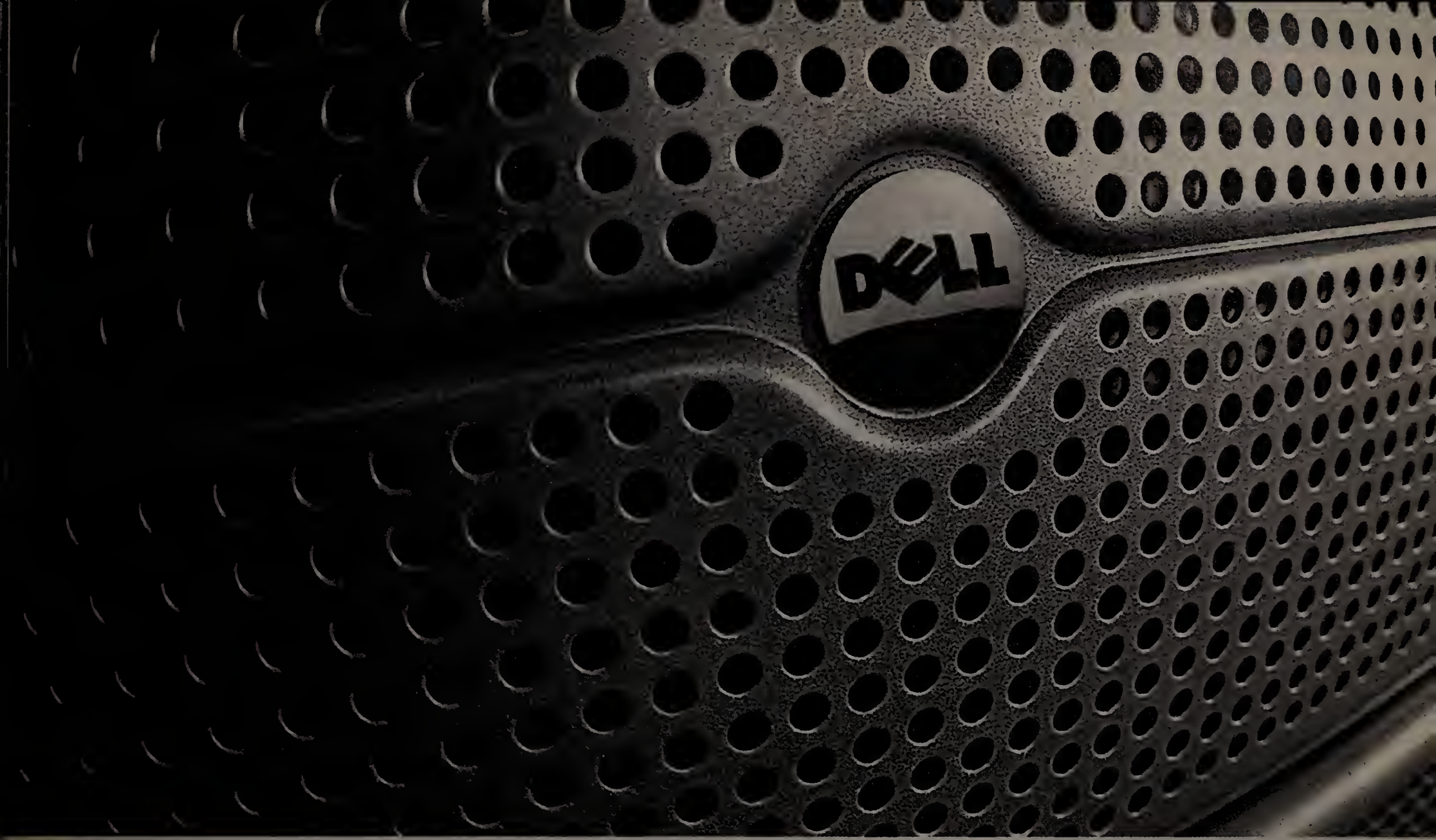

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Piecing It All Together

These IT managers are pleased with the business results of their high-priority EAI projects that began a year ago. By Maria Trombly

FOLLOW-UP Early last year, *Computerworld* reported that IT managers had made enterprise application integration projects a top priority for 2002. Here's a progress report on how two of those projects are faring more than a year later.

See story from Feb. 4, 2002: QuickLink 26906

A YEAR AFTER Steve Kaufman and his staff at Goshen, Ind.-based health care insurer Mennonite Mutual Aid Association (MMAA) launched a massive enterprise application integration (EAI) project, the results are in, and the news is mostly good.

The company's goal was to use tools from Vitria Technology Inc. in Sunnyvale, Calif., to integrate core insurance applications running on IBM AS/400s with applications running on Windows NT servers and to more than double its system-to-system interfaces over the next five years.

The project is being driven by the approach of the October 2003 deadline associated with the Health Insurance Portability and Accountability Act of 1996 (HIPAA), which requires the use of a set of specific standards for the electronic exchange of data.

"We finished our first project in August of last year, the HIPAA 834 group enrollment transaction, and now we're working on the most complicated transaction," says Kaufman, MMAA's director of IT architecture. That's the 837/835 transaction, in which MMAA receives a health claim from a provider and then tells the provider how it's going to pay the claim. This is also the transaction with the highest volume.

MMAA has also completed an interface from a Windows NT SQL Server database to an AS/400 DB2 database, connecting the company's two main databases.

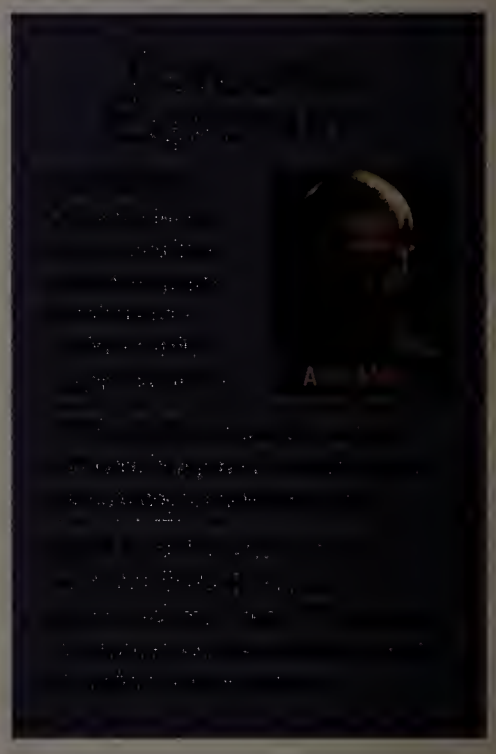
On the downside, initial plans to double the number of system-to-system interfaces have been slowed. "Our organization had plans for CRM, and those were cut back quite a bit with the whole economic situation, so that's going to slow down how many interfaces we put in," Kaufman explains.

Remaining Attractive

Another EAI user, Corporate Express Inc., an office supplies distributor in Broomfield, Colo., has improved customer service by almost doubling the number of interfaces to business partners, from 120 to more than 200. Its aim was to cut costs both internally and for its customers so it would remain attractive as a preferred supplier.

The company has also completed a handful of other EAI projects in the past year, including integrating its PeopleSoft ERP system and its warehouse management system.

"The integration effort is probably even more successful than we planned," says Andy Miller, vice president of technical architecture at Corporate Express. "We didn't think that we would replace as many legacy interfaces as we did. We actually went back to quite a few older interfaces between applications and retrofitted them."



One of the results was that the company set a new record for online sales this past January, selling more than $7 million in office products online in one day. Online sales now represent more than 50% of its total sales.

In addition, Corporate Express' integrated business-to-business systems, which include EDI and XML interfaces with customers' e-procurement systems, achieved a new daily high of more than $2 million. Corporate Express has integrated with more than 250 customer e-procurement systems, including platforms such as SAP AG, Oracle Corp., Ariba Inc. and Commerce One Inc. The company expects its 2003 e-commerce sales to exceed $1.5 billion.

Corporate Express is using integration technology from Fairfax, Va.-based WebMethods Inc.

By the end of 2003, Miller says, he expects to complete five more strategic EAI projects that will, among other things, expand the company's products and enhance its delivery capabilities.

"We haven't measured it officially, but we know of cases where we've won business because of our integration capability with customers," he says.

Looking ahead, Tom Dwyer, an analyst at Boston-based Aberdeen Group Inc., predicts that worldwide spending on integration software and services will continue to grow faster than overall technology spending for one simple reason: It's cheaper to integrate existing applications with new ones than to rip everything out and start fresh.

Trombly is a freelance writer in Belchertown, Mass. You can contact her at maria@trombly.com.

BRIEFS

Feds Start Bank System Overhaul

The Federal Deposit Insurance Corp., the Office of the Comptroller of the Currency and the Federal Reserve Board awarded a 10-year, $39 million contract to Unisys Corp. in McLean, Va., and its development team to overhaul the system federal regulators use to collect, process and distribute bank Call Report data. The system will be based on the Extensible Business Reporting Language (XBRL) standard and phased in through 2004. System development and pilot projects will take place over the next 18 months.

Unisys' development team includes Microsoft Corp., PricewaterhouseCoopers, EDGAR Online, Universal Business Matrix LLC and V-Tech Solutions Inc.

EDS Wins $27M Contract-Labor Deal

Electronic Data Systems Corp. and World Wide Technology Inc. (WWT) in St. Louis announced a five-year, $27 million contract under which EDS Procurement Services, a unit of EDS Business Process Services, will provide WWT with a managed process for hiring and managing professional contract workers. The program is expected to reduce WWT's costs by finding professional contract workers, negotiating labor rates, providing payroll and labor cost-reporting services, and eliminating administrative overhead.

Kanbay, Household Sign $65M SLA

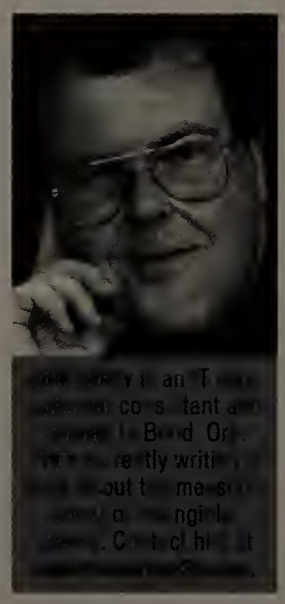
Consumer finance firm Household International Inc. in Prospect Heights, Ill., has signed a four-year, $65 million service-level agreement (SLA) with Kanbay Inc., a global integration and managed solutions company in Rosemont, Ill. Kanbay and Household have had a 13-year partnership that includes multisite development and a flexible global delivery model that spans several of Household's business sectors.

JOHN BERRY

Use 'Real Options' to Assess IT Options

WALL STREET invented stock call options to give investors a powerful risk-hedging technique. Like a sorcerer's crystal ball, options provide visibility into the future economic effect of a pending investment decision before the full investment is made.

Had such a decision technique been popular with CIOs 20 years ago, how much more wealth might IT investment have created? Conversely, how many IT investment disasters could have been avoided?



The science of finance has created a stepsister technique to call options that, in our current anemic economy and with our mandate to do more with less, is relevant to IT investment decision-makers. Called "real options," it's a way of figuring out whether to make an IT investment based on what the future value of that investment might be.

To understand real-options analysis, we first have to grasp its metaphorical relationship to stock call options. If you buy a call option for a block of shares of stock at a strike price of $30, and the actual stock price on the expiration date of the call contract is $35, you'll exercise that option for the shares at $30, then turn around and sell them for $35.

Likewise, if the price of the stock at the expiration date is $28, you'd let the contract expire and suffer the loss only of the cost of the contract. In this way, call options are a hedge that minimizes future losses against bad investment decisions made today.

Consider an IT investment in the automation of a plumping supply company's warehouse. The CIO determines that the value from the investment comes from reducing the costs of managing inventory and stocking the warehouse, while also reducing loading times on trucks and the number of employees. The total outlay will include buying the warehouse and logistics software, as well as infrastructure such as a Wi-Fi network, ruggedized PCs mounted on forklifts, some handheld devices and perhaps an application server. The company can't leverage the value of the warehouse application unless it first invests in the underlying technologies.

Say the total cost is $4 million. A net present value (NPV) calculation turns out negative, so the company shouldn't invest in this project. However, what if the company were to undertake a pilot project that cost only $1 million for networking and a few handhelds — with the option to make the full investment in one year?

Here's where a real-options calculation can help. Since we're not really dealing with stocks, which have a market price at any given time, we can employ an option-pricing model to give us a "market value" of the option to invest in the necessary IT. Two of the more common option-pricing models are called Black-Scholes and Cox-Rubenstein. (I won't horrify you with the actual calculations. Your finance jocks can tell you what information they need to run the calculation, including the NPV of the entire project after one year, which is the time period under which the option to buy the new technology expires.)

Let's say that, using the Cox-Rubenstein option-pricing model, the company calculates that the value of the pilot is $1.2 million one year out. Since this is greater than the $1 million upfront cost, the real-options analysis says the investment looks reasonable.

In this case, figuratively speaking, the "stock price" of $1 million will be exercised one year in the future when it appreciates to $1.2 million. The pilot investment gives the company the option one year from now to either make the complete investment or not, depending upon how successfully the first stage is implemented.

Real-options analysis isn't without controversy. Since IT investment isn't a tradable asset and doesn't have a market value like a share of company stock, option-pricing models must use a proxy for this input. Some finance chiefs discount its use for this reason.

Yet if nothing else, real-options analysis compels decision-makers to think of IT investments incrementally, so that they might have the willpower to cut losses from an initial investment gone awry — before even more capital is dropped into the abyss. ◗

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Advertising Supplement

IT Careers: E-tailers Give Away Network to Build Future

The shakeout over the past two years of start up e-tailers left a trail of dead companies and ideas. The survivors, however, are proving their mettle and have much bigger plans, including changing the way consumers look at their buying power.

Among the leaders are eBay, Amazon.com and Best Buy. eBay and Amazon.com are staking their futures not just on transactions, but also on selling and giving away their networks. eBay's claim is that its technology is the platform for e-commerce for 150,000 other businesses. The company is operating China's leading e-commerce site, EachNet, and eBay has established PayPal.com to automate online money transactions. In a sign of the times, eBay has acquired the former Novell Inc. headquarters, adding 2 million square feet for future office and research and development space. The company's new customer support center in British Columbia will add up to 600 jobs over the next two years.

Just as aggressive is Amazon.com, which is pushing its web services out into the economy in two ways. First, the company is *giving it away*. Hackers are welcome to use the system to create their own programs; 27,000 developers have signed on to abide by licensing rules and are creating programs that build on Amazon.com's technology.

That's great news, according to Rick Dalzell, senior vice president for worldwide architecture and platform software and CIO. Amazon will invest $200 million in technology this year, bringing the eight-year-old company's total technology investment to $1 billion. "Making our web services available ensures that people use our data," explained Andrew Herdener, spokesperson for the company. "By offering this to developers, we're creating a new network, a new web, based on Amazon.com."

Another tact undertaken by Amazon.com is its new subsidiary, Amazon Services Inc., which is selling turnkey e-commerce systems to other retailers. Already signed up are toysrus.com, circuitcity.com and target.com. The National Basketball Association is also operating its commerce site, nbastores.com, with Amazon technology.

The combination is a new way to shop – comparing bar code pricing, researching products, and defining what your shopping is and isn't.

Clark Becker, chief technology officer for Best Buy, believes this new type of shopping points to the IT profession's future. Better than 50% of Best Buy's customers shop online or do research at BestBuy.com before making an in-store purchase. There's always a place, even in downturns, for hiring those who are adaptable and have needed competencies. IT professionals need to think of themselves as "up-and-coming world-class programmers or designers, not as a world-class COBOL or Java programmers," Becker explains. "Technology will continue to change. Too many people define their careers by a technology skill and get caught having outdated skills instead of clear competencies and aptitudes."

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Senior Oracle Consultant: Oracle, Developer 2000, SQL*Loader, SOR, Visual Basic and Oracle HRMS with Financial Experience.

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Involved in all aspects of SWQA process. Process includes review of requirements documents, development & execution of test plans, filing of Remedy tickets & distribution of QA release documentation. Involved w/regular communication w/project managers, development engineers, & other company personnel. Software Quality Assurance Engineer operates under direction of either Director of SQA or an SQA Manager. Rqrs: BS in CS, Engineering, or a related field or equiv. & 2 yrs of exp in Software Quality Assurance. Also rqrs exp in utilizing RSW, XML, Perl, Visual Basic, & Oracle 8i in a Unix/NT environment. Must possess a demonstrated knowledge of SQA methodologies & must possess excellent written communication skills. 8:30a.-5p. 40 hrs/wk. $54,578/yr. Submit 2 resumes to Case # 200202139, Labor Exchange Office, 19 Staniford St, 1st. fl., Boston MA 02114.

E Computer Technologies, Inc., is a computer and technology solutions provider of business-to-business and E-commerce application implementation and integration services specializing in E-purchasing systems. Our company currently has openings for the following:

Programmer Analysts: Design and develop financial based applications using client server technology, n-tire technologies with Oracle 8i, Oracle ERP, SYBASE databases using J2EE, WEBLOGIC 7, Netscape and Enterprise Server, IBM MQ Series, Extensible Style Sheet Language Transformations, Unified Modeling Language for design, and object-oriented analysis and design. Design product features to meet requirements and perform quality tests for new and existing features. Use knowledge of market and accounting principles to develop software. Need Bachelor's degree in Computer Science or Engineering. Need 2 yrs of exp.

Send Resume to: E Computer Technologies, Inc., 777 S. Central Expressway, Ste #4-F, Richardson, TX or via e-mail at: jobs@ecomputertech.com.

Compuware
At Compuware, you can put your IT experience to work while constantly developing new skills. We currently have the following nationwide opportunities:

- Business Analysts
- Database Administrators
- Network Administrators
- Product Sales
- Product Management/Support
- Programmers/Analysts
- Project Managers
- QA Analysts
- Software Developers/ Engineers
- System Engineers
- Technical Writers
- Web Developers

www.compuware.com/careers Be sure to indicate the specific title and location you are applying for on your application letter. Send your resume, referring to ad #ITC0106, to: Compuware Corporation, Attention: Recruiting Dept. 31440 Northwestern Hwy., Farmington Hills, MI 48334. E-mail: ads@compuware.com. EOE

RiskMetrics Group is seeking a Web Developer for our Cambridge, MA location to develop complex cross-browser software, multiplatform solutions for highly interactive screens. Evaluate design & development needs of client, conduct logistical analysis of tech. probs & provide solutions. Write tech. specs & perform coding, debugging & testings. Implement complex graphing Java applets to display financial data. Tools: Java, Visual Age for Java, HTML, DHTML, CSS, JavaScript, Servlets, Java Beans, JSP, XML, KBTool, Macromedia Flash & Generator. REQS: BS in Comp. Sci. or Engin. + 2 yrs exp. in above job or 2 yrs as a Systems Analyst. Please forward resume to Alexis O'Conner, One Cambridge Center, Cambridge, MA 02142. No calls or faxes please. EOE.

DATABASE ADMINISTRATOR
Financial services company seeking Database Administrator. BS or equivalent in CS or Mathematics plus 5 yrs exp database administration w/MS SQL server/database. Will accept 7 yrs combination education and exp in CS, Mathematics and database administration w/ MS SQL server/database in lieu of BS and 5 yrs exp. Must also have 1 year exp in: hardware, OS and networking; MS Cluster Service and MS SQL Servers running in a clustered high-availability environment; SAN large-scale data storage technologies and data mirroring technologies. Please mail resume w/cover to Morgan Keegan & Company, Inc., HR, 50N. Front St, Memphis, TN 38103.

F/T Programmer Analyst. Responsible for developing and maintaining specifications, modifications and additions to programs. Implement the development of, and modifications to, programs for application in the textile industry using systems design. Recreate steps taken by users to locate and correct problems using systems analysis. Analyze, review and alter computer programs to increase operating efficiency and to adapt to new requirements using AS/400, RPG/400, ILE RPG, CL/400, SQL/400, and DB2/400. Monitor performance of programs after implementation. Must have a Bachelor's degree in Mathematics, Computer Science, related field or foreign degree equivalent. Must have 2 yrs. of exp. in job offered or position w/ same duties. Salary: Competitive. Send resume to: C. Lesker, Datatex TIS, Inc., 1040A Cambridge Sq., Alpharetta, GA 30004. No calls please.

Systems Analyst to Write Stored Procedures (using MS Visual Studio.net), Views, User Defined Functions & Select Statements using SQL Server 2000. Test & execute Stored Procedures using SQL Query Analyzer. Use Enterprise Manager & MS Management Console to create, save, & open MMC consoles to manage hardware, software, & network components of Windows system. Save all Procedures, Views, Function Scripts using Visual Source Safe. Utilize Test Director for testing. Design Reports using Seagate Crystal Reports 8.5 & Cognos. Provide technical support. BS in Computer Science + 3 yrs. Exp. in job duties. Apply: Acres Gaming, Inc., 7115 Amigo, Suite 150, Las Vegas, NV 89119 with proof of permanent work authorization.

Project Managers needed - Applicants possessing MS/BS or equiv. and relevant work exp. Part of the required work exp. must include 3 yrs working in Oracle and Sybase and 1 yr in technical lead position. Duties include: Client Servicing, Business Analysis; Design, develop and implement software based on requirements. Lead a team of programmers; prepare end review project plans, budget, resource. Experience in government projects preferable. Mail res., ref. and salary req. to: Stellar Corporation, 594 Marrett Road, Lexington, MA 02421.

Senior Software Engrs & Software Engrs sought by legal information services co. with office in NYC with exp. in any of the following: IIS, VB, ASP, XML, XSLT, CSS, JavaScript, COM+, ADO, MS SQL Server, Oracle, MS Commerce Server, MS BizTalk Server, Microsoft Visio, Windows, VB Script, DB2, .NET, C#, XSL & XSO. Analyze, design, develop, test & support web-based e-commerce applications. Resumes to HR Dept., CCH Legal Information Services, Inc, 111 Eighth Ave, NY, NY 10011.

Business Analyst sought by IT org to maintain mgmt info & report procedures. Implmt internal control systems. Dvlp d/base & intergate new systems for mgmt applic & tools. Use d/base, excel & other s/ware to prep mgmt reports. Bach/equiv in Science, Eco, Bus. Admin, Finance + 6 mos exp in job offd. Resp: Synygy, Inc, 555 North Lane, Ste 6000, Conshohocken, PA 19428; Fax (610) 664-7342, email: stewart@synygy.com

CW030707E/W/MW 1

Manager of User Interface Software Development sought by NJ based Securities Dealer for Chicago, IL office. Must possess Bachelor's degree or equivalent in Computer Science or directly related field and 5 years exp. in software development/design/analysis. Exp. must include C/C++, JAVA, C#. Respond to: Human Resources Department, #KFP03-99, Knight Financial Products, 130 Cheshire Lane, Suite 102, Minnetonka, MN 55305.

Software Engineers: Design, develop, code, test and implement software systems & apps. per hardware interface specifications in Linux Kernel, Perl, Tel/Tk, AWK, Bourne Shell, Visual Source Safe, CVS, RCS utilizing Micro/RISC-processor designs and storage protocols-RAID iSCSI, SCSI, Fibre Channel, etc. Prevailing wage & benefits. Send resume to Susan Chitsaz, iVivity, Inc. 5555 Oakbrook Parkway, Ste. 280, Norcross, GA 30093. EOE.

Fluent, Inc., leading Computational Fluid Dynamics (CFD) Software developer, is looking for Technical Support Engineers to develop CFD applications. Candidates must have BS/MS with 2-yr exp. in CFD, optimizing exhaust gas recirculation. Please contact: rs@fluent.com. EOE

NVH Simulation Engineer wanted by Akebono Corp to develop/simulate analytical modeling of friction material and NVH. Minimum requirements: MS with 2-yr experience in NVH analysis and testing. 34385 W.12 Mile Rd. Farmington Hills, MI 4833.No phone calls or emails. EOE.

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Machinery Network Administrator. Maintains main frame network and network controlled production software; maintains machinery software; mainteins comunication software responsible for comunication between main frame and machinery networks; trouble shoots hardware and software problems with machinery vendors in Germany and Italy; generates, converts, and downloads required format production files into machinery network for day to day production. 40hr/wk 7:00 to 4:00 P.M. $60,9444/yr Bachelor's degree in Engineering and Automation and Robotics required. Applicant must show proof of legal authority to work in the U.S. Send resumes to Illinois Department of Employment Security; 401 South State Street-7th North; Chicago Illinois 60605; Attention Brenda Kelly; Reference # V-IL 33403-K an emloyer paid ad; no calls - send 2 copies of both resume & cover letter.

COMPUTER ADMINISTRATOR

PricewaterhouseCoopers' (PwC) IFS practice has opportunities available for experienced professionals in the area of Digital Security. Positions require a bachelor's degree in CS, MIS or CE and 2 to 4 yrs technical experience with iPlanet, LDAP, Critical Path, Meta Directory, digital security systems, enterprise directory systems, UNIX and Windows NT is required. Job site/location: Tampa, FL. Interested candidates reference job code 44QMNKD & fax resume to "PWC US IT Recruiting" at (813) 348-7980. No phone calls please. Employer will only consider applicants authorized to work for any employer in the U.S.

Engineer - Customer Support Engineer - (FL) Analyze information to assist in the implementation of products. Make modifications based on customer needs & knowledge of systems & design. Monitor installed products. Provide training & customer support to clients. Req'd: Bach. Deg. in Comp. Eng'g or Comp. Science, 3yrs. exp. in the job offered, or as a Systems or Field Eng. Must have exp. with installation of sophisticated telecommunications equipment & protocols. Must be fluent in Spanish & willing to travel extensively in No. and So. America. Resume to: NICE Systems, Inc. 301 Rte. 17 N., 10th Fl., Rutherford, NJ 07070. Attn: G. Farese.

Database Administrator wanted by IT company in NYC to admin, develop & maint overall database performance & programs; data conversion, devlp DB tools. Write/devlp scripts. Use Sybase, SQL Server, Visual Source Safe, VB, Java, Delphi, TCQ, Oracle. Resumes to HR Dept., Vitech Systems Group, Inc., 401 Park Ave South, NY, NY 10016.

PROGRAMMER ANALYSTS for Chicago, IL office. Design & Develop software applications using Oracle, C++, Sybase, XML, UML, Interwoven, Coolgen, ClearCase, ClearQuest, Plumtree, PVCS, UNIX. Bachelors req'd in Computers, Engineering or related field of study +2 yrs of related exp. 40 hrs/wk. Must have legal authority to work permanently in the U.S. Contact HR Manager, Infobahn Softworld,Inc. 3140 De La Cruz Boulevard, #108, Santaclara, CA 95054.

Programmer Analyst III. Provide programming support for mutual funds, annuities, retirement plans, and commission tracking/payment systems, including full life-cycle application support, analysis, design, development, system modification, testing, set-up, reporting & creation of documentation. Develop Microsoft client server & web development solutions for company's customers. Must have Bachelor's in Comp. Sci., Engg. or related, 1 year exp., & knowledge of NaviSys LifeCAD/MP (Home Office), Microsoft SQL Server 2000, & XSLT. Send resume to Connie Reynolds, Human Resources, Security Benefit Life Insurance Co., One Security Benefit Place, Topeka, KS 66636.

Junior Programmer Analyst. Assist in designing, implementing, maintaining and upgrading internet applications. Req: BS in Comp. Sci., Comp. Eng., or Elec. Eng. 40 hrs./wk. Job/Interview Site: Newport Beach, CA. Send resume to Restoration Media, Inc., 1300 Quail, #202, Newport Beach, CA 92660.

Software professionals wanted in Northern NJ offices. Positions responsible for arch & module design, & code creation for equity transaction systems. Candidates must have MS or BS with 5+ yrs exp in comp sci or related field. Knowledge of FIX preferred. Send resumes to ATTN: Job Code DVBRA001, HR, SunGard Trading Systems, 545 Washington Blvd, Jersey City, NJ 07310 or fax to 201-239-5780.

Computer Systems Administrator. Analyze/maintain/modify applications on IBM mainframe. Req. BS Math/Comp. Science/Rel. Field & 2 yrs exp in job/2 yrs exp as Sr. Analyst/Programmer. Spec. Req. Expertise in COBOL, DB2, CICS, CSF, Cordaptix & Utility Billing Systems. Send Resume: Louie G. Abad, EV3A, Inc., 412 Wellsley Court, Folsom, CA 95630(Jobsite).

Sales Engineer - Analyze tech req. of clients for comp. telecomm integ. systems in N. & S. Amer. Prepare tech/eng'g proposals, configurations & price quotes. Req: Bach. Deg. in Electronic or Elec. Eng'g. & 4 yrs. exp. sales eng'r/systems eng'r or in comp. telecomm integ. occup. 20% travel. Must have exp. / CTI tech sales or installation, LAN, WAN & PABX. Must be fluent in Spanish. Send resume to: NICE Systems, Inc., 301 Rte. 17 N., 10th Fl., Rutherford, NJ 07070. Attn: G. Farese.

TechNation Software Consulting, Inc, a software consulting company with its main place of business at Sioux Falls, SD has multiple positions for Software Professionals.

Sr. Software Engineers: BS in CS, or equivalent with more than 5 years of recent programming experience or MS in CS with more than 3 years of such experience. Duties entail programming, gathering user requirements and customization of software in either of a) Database Systems which involves database design, data modeling working in both front end as well as backend applications on Unix and Windows platforms. Or in b) systems side programming in Unix, C, C++ which involves product development, working on telecom protcols or development of device drivers.

Both positions require knowledge of allied Internet technologies like Java, JSP, XML, J2EE and ASP. **Unix Systems administrators:** BS in Computer Sciences or equivalent with atleast five years of experience in an enterprise environment. (i.e. more than 500 users) Duties include extensive use of Network Implementation and Administration, System Integration, Backup and recoveries, shell scripting and System Securities. Experience in Management of Enterprise Network Storage devices (SAN or NAS), HP and Solaris Servers, switches, HUBs and in Veritas NetBackup systems.

TechNation provides onsite consulting services to clients across the United States and hence a **key requirement** for all positions is that candidates must be willing to relocate across the country for periods between 3-6 months or as needed.

Send resumes to Rona Troff, 300 N. Dakota Ave. Suite #505-B, Sioux Falls, SD 57104 or email to rtroff@tnscinc.com. Fax: 530-733-2775.

Systems Integration Engineers (Multiple Openings). Responsible for design and development of a software management system that interacts with wireless products and components and for managing the access control and roaming of Bluetooth and 802.11 mobile devices. Duties include: development of public key infrastructures, secure authentication and authorization protocols, reviewing functional and design specifications,GUI development and programming. Daily work with C/C++, Perl, Linux kernal development, Radius, LDAP, and Unix systems. Development of SNMP functions including MIBs. Requirements: Master's in CS, IT, EE or related and two (2) years of experience in the job or in the related occupation of analyst, programmer, engineer or similar OR *BS/BA plus 5 years experience in job or related occupation in lieu of MS plus 2 yrs experience. Also, demonstrated expertise using C and Perl programming languages; UNIX platforms and Linux based operating systems; and Network Management & Operations using technologies such as SNMP and/or Packet Switched Networks. Offered salary is $90,500/year for full-time employment (min. 40 hours per week) and standard company benefits. EEO. Submit 2 resumes and respond to Case No.200201768, Labor Exchange Office,19 Staniford Street, 1st Floor, Boston, MA 02114.

Seeking qualified applicants for the following positions in Memphis, TN: Technical Advisor/Scientific Programmer. Provide technical advice and expertise for real time or batch scientific programming systems/applications. Requirements: Bachelor's degree or equivalent in computer science, operations research, mathematics, statistics or related quantitative discipline plus 7 years of experience in systems development, including 2 in scientific environment. Experience with ArcINFO, ArcVIEW and Visual Basic also required. *Master's degree in appropriate field will offset 2 years of general (non-scientific) experience. Submit resumes to Chris Holliday, Federal Express Corporation, 3680 Hacks Cross Road, Bldg H, 2nd Floor, Memphis, TN 38125. EOE M/F/D/V.

Full-time Data Warehouse Architect: Architect, design, develop, and implement multidimensional databases. Responsible for developing ETL procedures in a SQL Server 7.0/2000 environment. Responsible for data modeling analysis, ODS, data marts, data warehouse architecture, database design, documentation, optimization, implementation and maintenance in an SQL server environment. Responsible for administration, development, support, and troubleshooting for MicroStrategy 7 Applications and for maintaining MicroStrategy Project schema and developing complex reports. Responsible for integration of multiple databases and multiple source systems into a single datawarehouse environment to enable business reporting and analysis. Analyze needs and requirements of existing and proposed systems, and develops technical, structural and organizational specifications. Work with SQL Server 7.0/2000, OLAP applications, DTS Package VB, ASP, C++, Lawson Financials, and Multidimensional tools. Must have Bachelor's degree in Computer Science, Mechanical Engineering, or related field. Must have 3 years experience in job offered or position with same duties. Send resume to Katie Weems, CareerBuilder, LLC, 8420 West Bryn Mawr Avenue, Suite 900, Chicago, Illinois 60631.

COBOL & ILE-RPG ANALYST/PROGRAMMER: Writes, updates and maintains programs written in COBOL/CICS for mainframe and RPG financial services clients. Creates and maintains IDMS/R and DB2 databases. Writes/fixes programs and database systems to establish compliance with ODBC or SQL OLEDB. Reviews work flow charts development by systems analysts/programmers to understand/advice on computer tasks performance. Creates description for programmers/analysts to understand program access to data. Writes physical database description for unauthorized access and tampering protection. Provides technical support/guidance for COBOL and RPG systems. Coordinates changes in computers databases. Creates & reviews changes in physical design of databases to assess effect on physical databases. Establishes database parameters. Calculates optimal values for parameters. Establishes computer access level for each database segment. Specifies used access level for retrieval, modification, deletion. Conducts quality control testing on codes and correcting errors. Generates prototype for potential clients to visualize applications. Job is in Miami, FL 40 hrs. weekly, 9-5 pm, $60,000/yr. Bachelor's degree or equivalent, based on education and/or experience, in Computer Information Systems or related field plus 2 years experience in job offered. Mail resume to: Data Industries, Inc., 6075 Sunset Drive, Suite #203, Miami, FL 33143. Attn: Philip Raifaizen.

COMPUTER

PricewaterhouseCoopers' (PwC) TAX practice has opportunities available for experienced professionals in the area of Computer Systems Analysi to provide technology solutions. Positions require a master's degree in CS or CE and 2 to 4 yrs related exp. Job site/location: Washington, DC. Interested candidates please reference job code 4TWTAA & fax resume to "PWC US IT Recruiting" at (813) 348-7980. No phone calls please. Employer will only consider applicants authorized to work for any employer in the U.S.

Mainframe Analyst/Programmer: Writes, updates and maintains programs written in COBOL/CICS for mainframe and financial services clients. Creates and maintains IDMS/R databases. Writes/fixes programs and databases to avoid Y2K problem. Review work flow charts development by system analysts/programmers to understand/advise on the computer tasks to perform. Creates a description for programmers/systems analysts to understand how program should access data. Writes physical database description to protect it from unauthorized access and tampering. Provides technical support and guidance for COBOL Systems. Coordinates changes in computer databases. Reviews changes in physical design of databases to assess effect on physical databases. Establishes database parameters. Calculates optimal values for these parameters. Establishes computer access level for each segement of database. Specifies user access level for retrieval, modification, deletion. Conducts quality control testing on codes and correcting errors. Enters codes to create production databases and utilities programs to monitor performance of database. Modifies data in fine-tuning database operations. Generates prototype for potential clients to visualize applications. Three positions available. Job is in Miami, FL., 40 hrs., weekly, 9-5pm, $60,000/yr. Bachelor's degree or equivalent based on education and/or experience in Computer Science, Computer Information Systems or other related field plus two years of experience in job offered. Mail resume to SMX Services & Consulting, Inc., 7220 NW 36th St. Suite #421, Miami, FL 33166. Attn: Amneris Hampton.

Blackbaud, Inc., the leader in bringing technology to non-profit organizations and educational institutions, seeks qualified individuals for the following positions at our Charleston, South Carolina headquarters:

Programmer Analyst: Design, write, and maintain code in Visual Basic for Blackbaud internal systems and create and perform unit tests of all existing code.

Software Engineer: Design and develop new software products and enhance existing products using Visual Basic. Program code for user interface, COM layer and database applications.

Conversion Programmer: Map and convert data, manage large conversion projects and serve as an escalation resource for the production team using Visual Basic and SQL. Job may be performed offsite/telecommuting.

Positions require a Bachelor's Degree in Computer Science, Engineering, or a related field as well as previous experience. Interested applicants should e-mail resumes to recruiting@blackbaud.com using reference code "BB".

Systems Analyst, Designer & Developer

Design & develop programs for special business needs using Oracle, Sybase, Informix, SQL Server, Progress, PowerBuilder, Visual Basic, C, C++, SQL, PL/SQL, HTML, XML, XSL, Perl. Carry out system feasibility studies. Develop business portals for conducting business by internet & intranet using Websphere, WebLogic, JRun, XML & Java. Deploy business applications on servers & clients. Manage database performance & tuning. Deploy various web services for enterprise functions. Must be willing to travel throughout US as needed for short or long-term assignments. Must have B.S. or foreign equiv. in Comp Sci, Math, Engineenng, or Physics + 1 yr exp in job offered or as Software Engr. or Systems Analyst. 8am-5pm, M-F. OT as needed. $68,000/yr. Reply to Job Order #WEB337582, Site Manager, Beaver County CareerLink, 2103 Ninth Ave , Beaver Falls, PA 15010-3957.

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NET2S is a leading International e-business, information technology, and communication infrastructure consulting firm. We are currently seeking for the following positions:

- Sr. Tibco (RV, Hawk, Ingetration Manager) Developer
- IT Risk Mgmt Security Architect
- Sun One / Siteminder Architect
- Business Objects / Cognos Developers
- .NET Architect

All positions require BS/MS degree with a minimum of 2 to 3 years of experience in the field. Must possess excellent communication skills as well.

NET2S, 82 Wall Street, Suite 400, New York, NY 10005; Fax: (212) 279-1960; Phone (212) 279-6565; or Email: jobus-ny@net2s.com

Computer Prgmr: Design, implement modifications to existing programs; dev, & program modules. Work w/manufacturing engr to define process requirements & convert req. into design specs. Schedule work timetable. Test & debug programs/code; analyze program performance & devise necessary corrections & improvements. Recommend changes in methods or procedures & present solutions. Customize ERP system using Oracle database. BS (or foreign equiv.) in Computer Science/ Engg. Exp. req. 2 yrs in job offered or 2yrs as Pgmr/Sys. Analyst. 2yrs exp. in customizing ERP software using Oracle Database req. Hrs 8-5, M-F, 40hrs/wk. Resumes to: Ann Llimo GM, EMS Solutions, 4355 International Blvd, Ste 200, Norcross, GA 30093

Programmer Analyst with technical applications experience with VB, SQL, Access, Crystal Reports and/or other technologies. Send resume to Smithers Scientific Services, Inc., Attn: KES, Req No. 456, 425 West Market St., Akron, OH 44313-2099. EOE.

Project Manager
Doctors Medcare seeks Project Manager in Gadsden, AL. Project mgt to implement + dev I.T. systems; Ensure delivery on time & budget; Eval. + recommend software +hardware systems; Plan, install, continued dev and support of systems; Project initiation, definition, business analysis, process modeling; Produce functional specs; Testing + maintenance. Must hold Masters in CS, Eng'g or related field + 6 yrs relevant exp. Résumé to Doctors Medcare, H.R., PO Box 1397, 604 Smith Street, Albertville, AL 35950.

OmniPros, a worldwide provider of software solutions, seeks motivated IT professionals specializing in: Java, J2EE, Oracle, WebLogic, Webmethod, Vitria, Tibco, Portals, Oracle CRM (Technical, 11i) Oracle Mfg (Technical/Functional, 11i), Oracle Finance (Technical, 11i), Business Development/ Technical Operations Management Please e-mail resume to careers@omnipros.com, fax resume to 408-944-0719, or mail resume to: OmniPros Ltd. 99 W. Tasman Drive, Ste 205 San Jose, CA 95134

SBI is looking for the following positions for its offices in Houston, TX, San Francisco, CA, Warren, NJ, Salt Lake City, UT and Portland, OR: Programmer Analysts, Technical Architects, Technical Consultants, Business Strategists, Systems Analysts, Software Engineers, Art Director, resumes by email or fax only to HR, SBI 2825 East Cottonwood Parkway, Suite 480, Salt Lake City, UT 84121: careers@sbiandcompany.com; Fax (801) 733-3201.

Database/Systems Administrator to design, develop, test, install, deploy, integrate, enhance & administer databases applying knowledge of database management systems such as Oracle, PERL, SQL, PL/SQL, Java/XML & VB/ ASP/SQL Server environments. Establish & maintain security & integrity controls. Reqd. B.S.C.S & 4 yrs exp. M-F, 40hrs/wk. Send resume to S. Arsenyev, Alazar, LLC, Ref. #99J, 1815 Pennsylvania Ave., Ste 1101, Washington, DC 20006.

Tobin International, Ltd. seeks applicants for the position of Senior Software Engineer in Denver, CO to design and develop GIS web-based enterprise software products using J2EE technology. Requirements for this position include a bachelor's degree in computer science, computer engineering or a related field and software experience. Also required is a working knowledge of designing and developing web-based enterprise products using J2EE technology, Oracle, UML and application servers. Respond by resume to Mary Kimball, Tobin International, 1625 Broadway, Ste. 500, Denver, CO 80202.

Indo-American Business Corporation (a financial sector), is looking for:

Financial Analyst: Should have a bachelor's degree in computer science/accounting with 2 years experience in financial analysis, planning, investment analysis & interpreting data, report analysis, MIS and use computer for decision making.

We accept foreign education equivalent of the degree, or the degree equivalent in education and expenence.

Send Resume: Indo-American Business Corporation, 415 N Cass Ave, Westmont, IL 60559.

SAP PROGRAMMERS
ZyQuest, Inc., a leader in IT Consulting is seeking experienced Senior Level SAP consultants. Candidates must have the following SAP skills: BW 3.1c, ABAP/4, SAP R/3, BDC, RFC, BAPI, and IDOC's. The successful candidate ideally will have 2+ years experience in SAP and must be willing to travel. We offer exciting opportunities for professional growth and a flexible compensation/benefits package. Interested? Please mail your resume in confidence to 1580 Mid-Valley Drive, Ste. 102, De Pere, WI 54115. EOE

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At CSC, marketability and mobility are the keywords of career success. As a global $11 billion technology services leeder, CSC promotes a collaborative and entrepreneurial environment. Your rewards are dynamic opportunities, a high level of responsibility, and the flexibility to chart your career success at our **Moffett Field, CA** location.

You will lead a team in the design, Implementetion, and verification of aerospace systems. Requires an MS in Aerospace Engineering and 5 years of experience in large-scale aerospace software engineering/systems analysis. Experience must include project management/team leading, C, C++, and system-level implementation of Java runtime environments, including standard class libraries.

We are proud to offer excellent salaries, comprehensive benefits, and opportunity for professional growth end development. Please forward cover letter and resume to: **CSC, M. Dunn, HR, 4090 South Memorial Pkwy., Huntsville, AL 35802.** Reference job code **MP010904** in the cover letter. EOE, M/F/D/V.

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Programmer/Analyst: Analyze, design, develop, test, implement and maintain customized software applications in a client/server environment. May be used on multi-tier systems related to Internet/Intranet/E Commerce. May also provide technical support to clients on and as needed basis. Must have Bachelor's degree in Computer Science, Math, Engineering or related. Must have 1 yr. exp. in job offered or in Software development. Such experience must include Ariba and related technologies. Must be willing to be assigned to unanticipated client sites throughout the United States. Salary: $72,000/yr. Hrs: 8:00am-5:00pm, 40/wk. Please send 2 copies of resume to: Case No. 200202553, Labor Exchange Office, 19 Staniford St., 1st Fl, Boston, MA 02114.

SOFTWARE ENGINEER to design, develop, test and document Windows-based application software using ATL, Visual Basic, C++, MFC, Windows SDK, VC++, DAO and ODBC under Windows NT operating system. Require: M.S. degree in Computer Science, an Engineering discipline, or a closely related field with 2 yrs. of exp. in the job offered or as a Programmer/Analyst. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Murli N. Reddy, Charter Global, Inc., 5445 Triangle Pkwy., Ste. 190, Norcross, GA 30092; Attn: Job SN.

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SOFTWARE ENGINEER needed to enhance, test, deploy and maintain large-scale distributed network fault management systems based on relational database technology, for networks including Switching, SS7 (Signaling System #7), SNMP (Simple Network Management Protocol), and SONET (Synchonous Optical Network); responsible for supporting fielded products, including deployment, troubleshooting, system configuration, problem resolution; develop programs and tools responsible for software release management for large scale systems, developing plans and schedules, interacting with development team, customer support personnel and vendors. Requires Masters degree in Electrical and Computer Engineering or Computer Science; requires 2 years experience in the job offered or 2 years experience in industrial software development; also requires 1 year experience enhancing, deploying and maintaining large-scale network fault management systems. Salary $92,835 per year; 40 hrs/wk, 8AM to 5PM, Monday to Friday. To apply, submit two (2) copies of your resume to:

Case #200202129
Labor Exchange Office
19 Staniford St., 1st fl.
Boston, MA 02114
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Engineering Development Manager

Will analyze and transform product requirements into subsystem specifications. Will direct technical efforts of software engineers to drive subsystem implementation. Will be responsible for subsystem requirements, including architecture and design reviews. Will participate in establishing design and code standards as well as providing accurate estimates for component development. Will perform unit, system, and integration tests of critical subsystems and components. Will provide guidance and leadership for other Software Engineers who are responsible for implementing modules. Will coordinate with architects, software developers, build team engineers, and QA engineers to deliver components in a cross functional organization. Will design and implement elements in the user interface and busIness logic using Java, JSP, Java Servlets, C++, XML, Dynamic HTML, HTML, JavaScript 1.2, COM/DCOM, Visual Basic, WAP, OAS, Oracle's Internet Application Server, BEA's Weblogic server, IIS, PL/SQL, JDBC, and Windows NT.

Master's Degree in Computer Science, Electrical Engineering or foreign equivalent plus four year experience in job offered or as Software Engineer, Database Developer, Web Design or closely related. Must have demonstrated expertise in building servers and infrastructure technology, Wireless Application Protocol (WAP) and other wireless technologies. Must have demonstrated experience with at least one major GDS (Global Distribution System) such as Saber System, Amadeus, Apollo, etc. Must have demonstrated understanding of configuration-management principles, build/release processes, and Source Control using Visual Source Safe and PVCS Trakker. Must have demonstrated expertise in OO analysis and design experience with UML and use-cases. $92,850/yr. 40 hrs/wk. M-F. 8:30a - 5:30p. Must be presently authorized to work in U.S. on a full-time basis w/out sponsorship.

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Health Care IT

tional Academy of Sciences in Washington to design a model electronic patient record that likewise would be offered at no cost for use by companies.

Kaiser Permanente Health Plan Inc. already uses the terminology database chosen by HHS and views the technology as a fundamental component for ensuring that data can be exchanged among the various medical systems in a hospital, said Dr. Louise Liang, senior vice president of clinical support systems at the Oakland, Calif.-based health maintenance organization.

No Overnight Solution

Liang said Kaiser plans to incorporate the database into a new automated medical records system that it's developing with software from Epic Systems Corp. at a cost of $1.8 billion [QuickLink 36200]. "It's one of the first things we asked [Epic] about," she said.

The availability of the terminology database in the public domain also should help spur adoption by other health care providers, Liang said. But she predicted that widespread deployment will take as long as five years. "I'm on the pessimistic side," Liang said.

"This is not going to happen overnight," agreed Nancy Brown, senior vice president of strategic planning at McKesson Corp.'s Information Solutions division. She said the vendors of medical systems technology will have to link the database to back-end servers and then provide access to the information via middleware. For its part, San Francisco-based McKesson plans over the next two years to gradually add the technology to the systems that it sells, according to Brown.

The database developed by the College of American Pathologists includes uniform terminology and descriptions for more than 340,000 medical concepts; the collection is formally known as the Systematized Nomenclature of Medicine Clinical Terms.

Technology Details

HHS and other federal agencies will pay $32.4 million over five years for a permanent license to the medical terminology database.

English and Spanish versions of the database will be distributed through the HHS-developed Unified Medical Language System.

You can find information about accessing the database on the Web at *www.nlm.nih.gov/research/umls/Snomed/snomed_announcement.html*

In addition to releasing the database to health care companies, the government plans to use it within HHS as well as the U.S. Department of Defense and the Department of Veterans Affairs.

The licensing agreement for the technology will be administered by the Bethesda, Md.-based National Library of Medicine (NLM), which is part of HHS. Dr. William Hole, a research medical officer at the NLM, said the database won't be made available to health care organizations until year's end because of the need to convert the files into an electronic meta-thesaurus that the HHS unit distributes for use by systems developers.

Meanwhile, HHS said it expects to make the proposed model electronic patient record available to health care companies next year. The model record is being designed by the National Academy of Sciences' Institute of Medicine and will be submitted for evaluation by Health Level Seven Inc., a health care standards development organization in Ann Arbor, Mich.

> **"Banks . . . can talk to each other electronically. . . . We want to do the same thing with the American health care system."**
>
> **TOMMY THOMPSON,** SECRETARY, U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Carla Smith, executive vice president of the Healthcare Information and Management Systems Society in Chicago, said she views the two HHS initiatives as "significant steps" toward creating a common infrastructure for automating medical records.

Smith noted that there currently is no such thing as a standard definition of clinical terminology in the health care industry. For example, some doctors use the term "heart attack" on medical charts, while others refer to the attacks as "myocardial infarctions," she said.

The standards situation is even worse when it comes to the structure of electronic medical records, Smith added.

HHS Secretary Tommy Thompson said in a statement that the agency is looking to help health care companies catch up to industries like financial services in exchanging data electronically — a move that he claimed would improve patient care while reducing medical errors and costs. "Banks and other financial institutions all across the country can talk to each other electronically, which has streamlined customer transactions and reduced errors," he said. "We want to do the same thing for the American health care system." ◗

Continued from page 1

Antiterror IT

Weldon spoke here last week at the Second Annual Government Symposium on Information Sharing & Homeland Security.

But Weldon, senior congressional staff members and independent experts cautioned that there are still problems to be overcome. Chief among them is the issue of money. According to Weldon, the House and Senate are now trying to reach agreement on restoring $168 million in IT funding that was cut from the Defense Authorization Bill last month.

"This is not the time to do [homeland security] on the cheap," said retired U.S. Army Gen. Wesley Clark. "I know there are turf wars. There are a number of reasons for walls between agencies. The way to stop the turf competition is with [financial] resources."

> **"This is not the time to do [homeland security] on the cheap."**
>
> **GEN. WESLEY CLARK,** U.S. ARMY, RETIRED

But the problem goes deeper than authorizing spending for IT, Weldon said. Currently, 88 committees and subcommittees touch "a hodgepodge of congressional jurisdictions" that control some portion of homeland security funding, he said.

Spending Decisions

Kim Kotlar, legislative director for Rep. Mac Thornberry (R-Texas), who helped draft the legislation that created the DHS, said a priority for Congress this year will be to help the new agency set IT spending priorities for the $30 billion homeland security budget recently passed by the House of Representatives, "rather than spread money around indiscriminately."

Tim Sample, former staff director at the House Permanent Select Committee on Intelligence, said federal largess and cultural stagnation must also be tackled before progress can be made on information-sharing.

"I spent eight years working with members of the committee, trying to get a system of collaborative analysis deployed throughout the intelligence community," Sample said. "We considered success [to be] getting a system [deployed] within an agency. Technology is not the issue. Bureaucracy is the issue."

But Ruth David, former director of science and technology at the CIA and now CEO of Arlington, Va.-based Analytical Services Inc., said she is starting to see signs of complacency throughout both the government and the private sector. She added that the focus of the homeland security effort can't be limited to the technology.

"We're treating information-sharing like the Holy Grail," said David. "This is about relationships, not about building an IT network and pushing out bits of data." ◗

Near-Term Challenges

- **The congressional Homeland Security Committee needs to be made permanent and given central budget authority.**
- **IT spending priorities must be set and enforced by Congress.**
- **Programs must be funded that support private-sector business cases while improving homeland security.**

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FRANK HAYES ▪ FRANKLY SPEAKING

Required Management

I CALLED BRUCE BARTON because I wanted to know something about requirements management. Barton is a systems engineer who has been using requirements management software for years. He says he can't imagine doing development without it. What real difference does it make? I asked. His answer was straightforward: The requirements for a project can start out vague, they can change midstream, and new requirements can show up. If you don't have a good way of managing those requirements, you have to deal with that vagueness and change in the dark.

He didn't add, "... the way most IT shops do it." But he could have.

After all, in most IT shops, "requirements management" consists of a spreadsheet containing all the user requirements that were collected at the beginning of the project. It's pretty useless as anything more than a historical list. Those business requirements aren't linked to technical requirements within the project. And when requirements change, you can't tell exactly what the effect will be on the project.

Compare that with the situation when Barton's company implemented PeopleSoft. If one business requirement for the project translated into 20 specific technical requirements, they were all linked in the requirements management system. If the business side wanted to change that requirement, the implementers could see how the changes cascaded down.

They could see what would happen when a vague requirement was clarified, or new requirements were added, or changes had to be rolled back. Nobody had to guess. They could tell how the changes would affect what had already been done on the project and what the consequences would be for the work still left to do. That gave them much better control over the project's costs and schedule.

It also meant that the implementers could answer business-side users' questions about potential changes — and could justify budget and schedule shifts with hard facts, not guesses and fuzzy estimates.

That's the difference a requirements management system can make: control and information that translate into transparency, accountability and credibility. And these days, those things matter a lot.

Why? Because those are things being demanded of everyone on the business side. And there's no way IT will be exempt. If the IT shop can't deliver transparency, accountability and credibility, business-siders will ship IT work offshore.

Don't kid yourself — all those IT projects aren't going overseas just because of the cheap labor. There's also plenty of dissatisfaction on the business side with what it has been getting from IT. There are too many bugs and not enough of the right features delivered fast enough. Too many requirements are frozen too soon. There's not enough flexibility when business needs change. There are too many excuses. And not enough responsiveness.

We got away with that routine for a long time. But now business-siders have an alternative, and we've got competition.

So we can no longer afford to pretend that a configuration management system and Gantt charts in Microsoft Project represent the state of the art in project automation. We need to start using new tools and techniques for everything from tracking requirements to generating code to keeping it bug-free.

Yes, that will cost some money, which is hard to come by these days. Even harder will be getting IT project teams to adopt new ways of working. We don't much like having to change. But for once, we've got some real motivation. Bringing our project tools and processes into the 21st century may not be enough to keep that work in-house. But if we don't, we're toast for sure.

Because if we can't start delivering on the promises of transparency, accountability and credibility and show business-siders the advantages of in-house IT, the next requirements we have to manage could involve turning out the lights in the IT shop — for good. ◗

FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

Users – Can't Live With 'em . . .

This user is having trouble installing the latest update for an in-house application, so she calls support pilot fish. "I remember that I had problems last time," she tells fish. "So this time, to make sure I didn't mess anything up, I deleted all the files." Sighs fish, "It was pretty much all downhill from there."

SHARK TANK

Um, No

Network admins decide all users should move their files to network folders. But after 15 minutes of copying, one user complains to support pilot fish about how long it takes. Fish explains that she has lots of documents and a slow network connection, and all the other users are uploading files too. But user points to the Windows animation of documents floating from one folder to another and says, "Well, wouldn't it go faster if they just moved these two folders closer together on the screen?"

On the Make

New-hire salesman assures IT pilot fish that he's used a laptop for years and is ready to start advanced training, so fish gives him his laptop and turns him over to the trainer. But as fish is on his way out the door, he overhears the new sales guy ask, "Now is this something that I'm going to have to charge?"

On the Go

Home-office user gets a new dial-up connection and calls tech pilot fish to set it up. Are you in front of your computer? fish asks. "No," user says, "I'm next door at my neighbor's so I can test my connection while on the phone with tech support. But I can run back and forth."

On the Ball

This user's trackball isn't working, so help desk pilot fish suggests borrowing a trackball from another workstation and trying it on his machine. When user returns to the phone a few minutes later, fish asks if it works. "Someone was using the computer, so I couldn't take the base," user tells fish. "But I did swap out the ball, just to make sure it wasn't the problem."

Satisfaction

Users complain bitterly about performance problems on this mini-computer, and nothing the database guys do seems to help. So tuning-guru pilot fish is called in. "Turns out the system manager wasn't happy with the performance of the machine after it was delivered," fish reports. So the manager had given himself the highest priority possible. "He didn't realize he essentially had exclusive access to the machine and all the users were waiting for him," fish says. "But he was very satisfied."

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